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I. BIOMEDICAL SCIENCES

Aerospace Medicine

USSR

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AGE-RELATED CHANGES IN HEPATIC LYSOSOMAL ENZYME ACTIVITIES DURING  
ADAPTATION TO HYPOXIA AND HYPERBARIC OXYGENATION

Moscow PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTA'NAYA TERAPIYA in Russian  
No 1, 1978 pp 29-33 manuscript received 20 Nov 76

MAKAROVA, V. G., Ryazan Medical Institute imeni I. P. Pavlov

[Abstract] Studies were conducted to determine the effects of hypoxia (8,000 m equivalent altitude for 6 hr) and hyperbaric oxygenation (0.5 atm  $O_2$  3 hr/day for 2 days or 3.5 atm  $O_2$  for 4 hr) on free lysosomal enzymes (RNAase, DNAase, cathepsins) in the livers of 108 outbred albino male rats divided into 3 groups: young (3-4 weeks), adult (3 months) and old (20-24 months). The results showed that acute hypoxia promoted an increase in all free enzymes in every age group except in the case of DNAase in the young rats; the increases were statistically significant ( $P < 0.05$  to  $P < 0.001$ ). 0.5 atm hyperoxia led to a statistically significant increase only of RNAase in the old rats, while 3.5 atm oxygenation resulted in a significant increase in every enzyme in each age group. Further determinations were performed to establish whether adaptation or 'training' to hypoxia would diminish changes seen in enzymatic activities following exposure to hyperoxia, and vice versa. The findings indicated that 'cross-adaptation' was not feasible, although preexposure to hypoxia alleviated somewhat the changes induced by subsequent hyperoxia. References 15: 10 Russian, 5 Western.



USSR

UDC 616-008.839.6-074

ASSESSMENT OF ELECTROIMMUNODIFFUSION AS A METHOD FOR ASSAY OF PROTEINS IN BIOLOGICAL SUBSTRATES

Moscow LABORATORNOYE DELA in Russian No 4, 1978 pp 209-214 manuscript received 19 Jul 76

NIKOLAYEVA, T. A. and KHAZENSON, L. B., Leningrad Scientific Research Institute of Epidemiology and Microbiology imeni Pasteur

[Abstract] Accuracy of assay of immunoglobulins has been improved by the electroimmunodiffusion technique first used by Hartley (in 1966). Soviet literature has contained little information on the use of the technique, and the present article compares its sensitivity, accuracy and reproducibility with the radial immunodiffusion technique (described by Fahey and McKelvey, 1965). Assays were made on blood, saliva and fecal extracts of Sonne dysentery patients. Statistical evaluation of results by the two methods, and content of immunoglobulins and albumin found by each method, are tabulated. The electroimmunodiffusion techniques are described as applicable for quantitative assay of immunoglobulins and albumin in blood serum and saliva; it is more sensitive than radial immunodiffusion, more rapid and gives satisfactorily reproducible results. Careful selection of parameters of the reactions in the electroimmunodiffusion method is essential to assure quantitative results. Figure 1; references 14: 4 Russian, 10 Western.

USSR

UDC 575.224.232/.234:618.32

FREQUENCY OF LETHAL CHROMOSOMAL AND GENOMAL MUTATIONS IN MAN

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 12, No 1, Jan/Feb 78 pp 57-63 manuscript received 11 Apr 77

KULESHOV, N. P., Institute of Medical Genetics, Academy of Medical Sciences USSR, Moscow

[Abstract] A cytogenetic study of tissues from perinatal mortality cases is reported. The cases included 209 children--24 died in the pre-natal period, 68 during birth, and 117 after birth (first 7 days of life)--from maternity confinement houses and from pathological anatomy departments in Moscow. The tissue culture method used has been previously described (Kuleshov, 1974, 1975). Tissues selected were blood, gonads, kidneys, skin (pre-natal), blood, gonads (intranatal) and blood, gonads (perinatal). Frequency of chromosomal anomalies was 7.2%. Of the 15 cases of manifested

chromosomal anomalies 5 were anomalies in the system of sexual chromosomes, 8 autosomal trisomies, 1 structural reorganization and 1 triploidy. A comparison was made of the author's data and the findings in London and Edinburgh, and combined data showed that frequency of chromosomal lethals in human populations, in registered pregnancies, was  $6.44 \times 10^{-2}$ . Population frequency of chromosomal lethals was calculated to be  $54.89 \times 10^{-2}$ . References 21: 6 Russian, 15 Western (one of the latter is by Kuleshov).

USSR

UDC 577.152.311'164.087.4:543.545.4

MODIFIED METHOD FOR THE DETECTION OF CHOLINESTERASE ISOENZYMES BY  
POLYACRYLAMIDE GEL ELECTROPHORESIS

Moscow LABORATORNOYE DELO in Russian No 10, 1977 pp 609-611 manuscript  
received 12 May 76

BRESTKIN, A. P., VYAZ'MENSKAYA, M. M., DEMBO, M. A. and MAYZEL', YE. B.,  
Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov,  
Academy of Sciences USSR, and the Institute of Hematology and Blood  
Transfusion, Leningrad

[Abstract] The following modification of the method of Mukhamedzhanov (Laboratornoye Delo, No 1, p. 19, 1971) is proposed for more rapid detection of cholinesterase isoenzymes following polyacrylamide gel electrophoresis. Human erythrocyte acetylcholinesterase (EC 3.1.1.7) (AChE) and equine serum butyrylcholinesterase (EC 3.1.1.8) (BChE) were subjected to disc electrophoresis on PEFA-1 polyacrylamide gel for 30-40 min, 3.5 mAmp/tube, pH 7.2-7.3 at 30°C. Following electrophoresis the isoenzyme bands were exposed to thiocholine ester substrates and subsequently stained with hydrogen sulfide to yield dark bands. The results showed that this resolved AChE into 3 fractions and BChE into 2; furthermore, human serum cholinesterase yielded 2 fractions. Figures 1; references 10: 4 Russian, 6 Western.

USSR

UDC 616.155.3-008.931-074

HOMOGENIZATION CONDITIONS FOR LEUKOCYTES DESIGNED TO YIELD MAXIMUM  
ENZYME ACTIVITIES

Moscow LABORATORNOYE DELO in Russian No 10, 1977 pp 613-616

GOLOBOROD'KO, O. P., LOSITSKAYA, V. M., KOSTYUCHENKO, YE. S. and  
MOLYUK, YE. D., Biochemistry Laboratory, Kiev Scientific Research Institute  
of Otolaryngology

[Abstract] Studies were undertaken to determine conditions of homogenization of leukocytes which would yield maximum activities of lactic dehydrogenase (LDH) (EC 1.1.1.27) and neutral proteinase. Following removal of the leukocytes from citrated plasma the leukocyte samples ( $2-4 \times 10^6$  cells/ml) were subjected to homogenization in a PT-2 homogenizer with a Teflon pestle. The results showed that with this apparatus maximum activities of neutral proteinase were obtained after 1 min at 3000 rpm, although LDH activity was somewhat lower than that seen after 0.5 min of homogenization. This study indicates that the conditions intended for enzymes studies must be adjusted to take into consideration the characteristics of the individual enzymes of interest. Figures 1; references 26: 3 Polish, 12 Russian, 10 Western.

USSR

UDC 616-008.922.1-04-092.9-07:[616.127+616.45]-008.93-074

DIHYDROXYPHENYLALANINE AND CATECHOLAMINE LEVELS IN THE HEART AND ADRENALS  
DURING HYPOXIA IN RELATION TO INITIAL STATE OF ADRENERGIC REGULATORY  
MECHANISMS

Moscow PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA in  
Russian No 6, 1977 pp 27-31 manuscript received 13 Jan 77

KHITROV, N. K. and ALAVERDYAN, A. M., Department of Pathologic Physiology,  
First Moscow Medical Institute imeni I. M. Sechenov

[Abstract] Studies were conducted on 100 albino male rats, 200-300 gm in weight, to determine the effects of the reserve capacity of adrenergic mechanisms on the physiologic response to hypoxia. The results demonstrated that exposure of the rats to a 7-8%  $O_2$  in  $N_2$  mixture led to elevation of cardiac and adrenal levels of DOPA and catecholamines, while exposure to 3-4%  $O_2$  in  $N_2$  resulted in their depression. Intraperitoneal administration of L-DOPA (20 mg/kg) 25 min prior to hypoxia inhibited cardiac metabolism of DOPA to norepinephrine; furthermore, it prevented depletion of the cardiac and adrenal reserves of catecholamines in deep hypoxia. Prehypoxic

administration of norepinephrine (0.5 mg/kg, ip) led to its accumulation in the myocardium and depression of DOPA levels; similar changes were noted without exposure to 7-8% O<sub>2</sub> gas mixture. Intraperitoneal administration of reserpine 24 hr (4 mg/kg) or 12 hr (2 mg/kg) prior to hypoxic episodes markedly attenuated the effects of low O<sub>2</sub> tension in the respiratory mixture. However, prehypoxic administration of norepinephrine and reserpine greatly increased the susceptibility of the rats to the effects of low O<sub>2</sub> tension. Figures 1; references 14: 3 Russian, 11 Western.

USSR

UDC 616.5-001.17-092.9-07:616.5-003.9-008.921.7-074

# EFFECTS OF THERMAL BURNS ON DEAMINATION OF NITROGENOUS COMPOUNDS IN FIBROGRANULOMATOUS WOUND TISSUE

Moscow PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA  
in Russian No 6, 1977 pp 11-14 manuscript received 17 Mar 76

GORKIN, V.Z., STAL'NAYA, I. D. and ROMANOVA, L. A., Biochemistry Laboratory of Amines and Other Nitrogenous Compounds, Institute of Biological and Medical Chemistry, Academy of Medical Sciences USSR, Moscow

[Abstract] Studies were conducted on the biochemical differences between the fibrogranulomatous tissue (FGT) obtained in rats subjected to 70° or 90° burns and in control rats. FGT was obtained from a circular cutaneous wound covered by a glass disk; in the experimental rats the circular skin excision was performed in a thermally injured area. Eight-day follow-up on the control animals showed a steady increase in the formation of FGT, its concentration of hydroxyproline, depression and then an increase in the concentrations of malonic dialdehyde and diene conjugates, a biphasic decrease/increase cycle in deamination of adenosine-5'-monophosphate (AMP), serotonin, and tyramine, and an increase/decrease cycle in the deamination of histamine and lysine. Comparison of control and experimental data for day 8 showed that the most remarkable differences consisted of an increase in AMP deamination (90° > 70° > control), highly elevated FGT putrescine concentration and rate of serotonin deamination of the 90° rats, and virtually complete suppression of lysine deamination in the 90° rats. Introduction of hemolytic streptococci into the wounds favored a significant increase in FGT formation (also noted on introduction of an autoclaved culture), and resulted in depression of lysine deamination without inducing an increase in the rates of AMP and serotonin deamination. The results suggest that burns and infection alter to some extent the biochemical aspects of wound healing. Figures 3; references 10: 7 Russian, 3 Western.

USSR

UDC 616-008.839.6-074

QUANTITATIVE ASSAY OF SPECIFIC PROTEINS IN BIOLOGICAL LIQUIDS USING  
KINETIC IMMUNOCHEMICAL METHODS BASED ON DISPERSION OF LASER LIGHT IN A  
CENTRIFUGAL ANALYZER

Moscow LABORATORNOYE DELO in Russian No 1, 1978 pp 18-22 manuscript  
received 13 Jan 76

[sic], Chapel Hill, USA [Abstracter: the correct designation of the institution is University of North Carolina]

[Abstract] A centrifugal analyzer was employed to develop methods for determination of IgG, IgA and IgM and albumin in serum, and IgM and albumin in spinal fluid. Results were used to assist in diagnosis of demyelinating diseases. Description is given of apparatus used, laser source (helium-neon), reagents, calibration and technique and results are presented in tabular and graphic displays. Advantages of the assay method are discussed. Figures 6; references: 18 Western.

USSR

UDC 616.36-089:615.849.19

HEMOSTATIC PROPERTIES OF CO<sub>2</sub> LASER RADIATION

Kiev KLINICHESKAYA KHIRURGIYA in Russian No 1, 1978 pp 44-48

POLISHCHUK, YE. I., Institute of Oncologic Problems, Academy of Sciences  
Ukrainian SSR

[Abstract] Various methods used for surgical resection--scalpel, electric knife, CO<sub>2</sub> laser beam--were compared for attendant blood loss. The studies were carried out on 238 outbred male rats, ca. 200 gm in weight, and involved hepatic and renal resections on animals under hexobarbital anesthesia. The CO<sub>2</sub> laser beam involved a 10.6 mcm wavelength with axial intensity reaching  $2.5 \times 10^5$  watts/cm<sup>2</sup> after focusing. The results showed that the blood loss in hepatic surgery completed with the scalpel, electric knife, and laser was  $2.5 \pm 0.12$  gm,  $2.1 \pm 0.10$  gm, and  $1.4 \pm 0.13$  gm, respectively. The corresponding values in the case of renal resection were  $3.2 \pm 0.09$  gm,  $1.7 \pm 0.08$  gm, and  $0.4 \pm 0.03$  gm. The results pointed to the advantages of laser resection in terms of alleviation of blood loss, due to the effectiveness of the CO<sub>2</sub> laser beam in promoting thrombosis of blood vessels up to 2 mm in diameter. References 9: 7 Russian, 2 Western.

USSR

UDC 616-001.34:612.76

MOTOR DISORDERS IN VIBRATION SYNDROME

Kiev VRACHEBNOYE DELO in Russian No 1, 1978 pp 128-130

OTVAGA, I. S., Department of Occupational Diseases Pathology, Kiev Research Institute of Labor Hygiene and Occupational Diseases

[Abstract] Studies were conducted on the motor function of 50 male and 65 female grinders between the ages of 20 and 50 years, of whom 73 were engaged in grinding occupations for over 10 years. Approximately 50% of the subjects evidenced various degrees of muscular and neuromuscular disorders consisting of myalgia, myositis, myofascitis, and weakness of the upper extremities. Chronaximetric studies on the antagonist muscles of the upper extremity revealed depressed excitability that was directly related to the severity of the vibration syndrome. The results obtained in this study indicate the importance of neurologic and neuromuscular work-up for proper diagnosis of the vibration syndrome and degree of disability. References: 5 Russian.

USSR

UDC 449.57:576.895.421.06

CONTROL OF IXODID TICKS SERVING AS VECTORS OF HUMAN DISEASE

Moscow MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI in Russian No 1, 1978 pp 3-11 manuscript received 27 Sep 77

USPENSKIY, I. V., Institute of Medical Parasitology and Tropical Medicine imeni YE. I. Martsinovskiy, Ministry of Health USSR, Moscow

[Abstract] The problems involved in the control of ixodid ticks that serve as vectors of human disease are reviewed on the basis of Soviet and non-Soviet literature. Essentially, the author is in agreement with a holistic approach to this problem and emphasizes the fact that failure in many areas has been due to poor entomology. The conclusion is that the most promising approach to the control of ixodid ticks rests on interference with their reproduction by means of chemical agents, particularly controlled release preparations or, alternatively, induction of infections. References 65: 39 Russian, 26 Western.

USSR

UDC 614.449.57:615.285.7

LABORATORY AND FIELD TESTS OF NEW INSECTICIDAL SMOKE POTS

Moscow MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI in Russian No 1, 1978 pp 86-89 manuscript received 24 Mar 77

MITROFANOV, A. M., PETRUCHUK, O. E., ZMUSHKO, E. T., KOZIN, N. P., SIDOROV, A. I., SHERENKOV, V. S. and KAZAKOVA, V. I., Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR, Moscow

[Abstract] Comparative data are provided on the insecticidal effectiveness of GO-60 smoke pots containing 60% hexachlorocyclohexane and standard G-17 smoke pots containing hexachlorane when tested against various species of Aedes and Culex mosquitoes. Laboratory tests showed that G-17 resulted in 100% mortality after 24 hr following 30 min of exposure to the active agent at a concentration of 0.5 gm/m<sup>3</sup> of air. Equivalent mortality with GO-60 was obtained after 8-12 hr with similar exposure period and concentration of the active agent. Further, field tests with 2 kg GO-60 pots showed that they were 4-5 fold more effective than G-17 smoke pots under open-field conditions (southern Krasnoyarskiy Kray) and in forests (northwestern Yakutia). Under open-field conditions one GO-60 smoke pot was required for an area of 4 hectares; similar effectiveness required one pot per 2.5-3 hectares of forest land. Figures 1; references: 7 Russian.

USSR

UDC 616.9-039-18:681.3(001.57)476

SEASONAL MORBIDITIES OF CERTAIN INFECTIOUS DISEASES IN THE BELORUSSIAN SSR

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 1, 1978 pp 47-49 manuscript received 28 Jun 77

PIVCHENKO, A. G., POLIVODA, Z. M., POPOV, M. P. and CHERNOSHEY, A. A., Ministry of Health Belorussian SSR, and the Republican Computerized Information Center of the Ministry of Health Belorussian SSR

[Abstract] A review of the statistics on the morbidity of infectious diseases in Belorussia during the 1960-1976 period revealed that seasonal prevalence of one disease or another followed recognized and accepted patterns. However, certain noteworthy differences were detected. Thus, during the period in question seasonal peaks of measles and scarlatina shifted from autumn/winter to spring, while significant attenuation was noted in the seasonal variations of infectious hepatitis and the dysentery/gastroenterocolitis group. Remarkable changes in 1976 consisted of a 30-40% decrease in the peak morbidity of the dysentery/gastroenterocolitis group in July, as well as a much more marked leveling off of seasonal variations in the case of infectious hepatitis. For the first time since 1960 pertussis peaked in November. The collected data indicate the need for continuous vigilance on the part of public health workers in view of the variability in the epidemiologic picture of infectious diseases in the Belorussian SSR. References: 1 Russian.

USSR

UDC 616.988.25-002.954.2+616.9-036.12

ASSOCIATION OF TICK-BORNE ENCEPHALITIS WITH OTHER ACUTE INFECTIONS

Kiev VRACHEBNOYE DELO in Russian No 1, 1978 pp 142-145

SHAPOVAL, A. N., professor, Perm Medical Institute

[Abstract] Five cases were presented of tick-borne encephalitis in association with other acute infections; the patients ranged from 4 to 39 years in age. Special attention was accorded to the diagnostic difficulties inherent in differentiation of the concomitant infections, which consisted of acute respiratory infections, adenoviral infections, infectious hepatitis, and thick-borne erythema. Published reports indicate that in the Perm oblast ca. 6-11% of all cases of tick-borne encephalitis are complicated by other infections, and this fact emphasizes the importance that must be placed on epidemiologic, viral, and immunologic data in arriving at a diagnosis. References: 11 Russian.



USSR

UDC 616.981.42-084.2

PROPHYLACTIC DISPENSARY MONITORING OF STOCK BREEDERS IN FOCI OF CATTLE  
BRUCELLOSIS

Tashkent MEDITSINSKIY ZHURNAL UZBEKISTANA in Russian No 12, 1977 pp 46-47

GALKO, I. K., TASHBEKOV, B. U., ARTYKOV, K. A. and AKHMEDOV, B. K.,  
Tashkent Oblast Sanitary Epidemiologic Station

[Abstract] In order to prevent and treat frank human cases of brucellosis (abortus) among stock breeders in areas of Uzbekistan with cattle brucellosis, it is recommended that individuals who become serologically positive be examined 3 times at one-month intervals at a dispensary. Prior to the last examination serologic testing is repeated and, if there is no clinical evidence of brucellosis, the subjects are discharged until the next routine examination.

USSR

UDC 616.936-022.375(470-25)"1974-1976"

CHARACTERISTICS OF MALARIA CASES IMPORTED INTO MOSCOW FROM ABROAD (1974-1976)

Moscow MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI in Russian  
No 1, 1978 pp 105-109 manuscript received 2 Aug 77

DASHKOVA, N. G., STEPENKO, A. S., GLUSHKOVA, M. R. and YAROTSKIY, L. S.,  
Institute of Medical Parasitology and Tropical Medicine imeni Ye. I.  
Martsinovskiy, Ministry of Health USSR, Moscow, and the Moscow Municipal  
Sanitary Epidemiologic Station

[Abstract] An analysis was made of the recorded cases of malaria in Moscow during 1974-1976 brought in by foreigners (172 cases) or Soviet citizens (122 cases) returning from abroad. The individuals came largely from Africa (226 cases) and Asia (48 cases); most of the African cases originated in central and western Africa (130 and 62 cases, respectively). Forty of the Asian cases originated in India and Pakistan. *P. falciparum* was identified as the etiologic agent in 179 (60.8%) of the cases, most involving natives of west Africa. Individuals with clinical manifestations of Malaria do not present a public health threat, although carriers of sexual forms of *P. falciparum* may present a hazard in southern USSR where *Anopheles sacharovi* and *A. subalpinus* prevail. Tertiary malaria afflicted mostly Soviet citizens returning from southern Asia, and accounted for 17.2% of the total number of cases. In view of the prevalence of potential local mosquito vectors *P. vivax* is deemed to present the greatest health hazard with respect to resurgence of malaria. References 23: 9 Russian, 14 Western.

USSR

UDC 616.995.132.5-022.375-07

FIRST CASE OF DIPETALONEMATOSIS UNCOVERED IN A SOVIET SPECIALIST RETURNING FROM EQUATORIAL GUINEA

Moscow MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI in Russian  
No 1, 1978 p 116 manuscript received 29 Jun 77

MIKHAYLOVA, V. A., ZUBKOVA, T. A., and KAPRAL, KH. A., Republic Port Hospital, Tallin, Estonian SSR

[Abstract] From November 1976 to March 1977 11 individuals that had returned from service in Equatorial Guinea were monitored at the Republic Port Hospital in Tallin because of suspected filariasis. Thick smear studies of the blood and Romanovsky staining revealed microfilaria in specimens from one 50 year old individual, which were identified as *Dipetalonema perstans*. The patient presented with pruritus, lymphadenopathy, edema of the right hip region, etc. First symptoms appeared a month after returning to the USSR (August 1976) from a 2-year stay in Equatorial Guinea.

USSR

UDC 616.988-002.151.036.21-078:576.895.421.01

FACTORS THAT DETERMINE THE DENSITY OF HYALOMMA PLUMBEUM PANZ. AND ITS RELATION TO THE MORBIDITY OF CRIMEAN HEMORRHAGIC FEVER

Moscow MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI in Russian  
No 1, 1978 pp 15-20 manuscript received 16 May 77

KONDRATENKO, V. F., Rostov-on-Don Research Institute of Epidemiology, Microbiology and Hygiene

[Abstract] Investigations were conducted to quantify the factors that determine the density of disease-carrying ticks--*Hyalomma plumbeum*--responsible for Crimean Hemorrhagic Fever (CHF) in the Rostov Oblast. Evaluation of statistical and meteorologic data collected during the 1964-1974 period indicated that the following equation applies to the morbidity of CHF (y):

$$y = -558.63 + 17.06(x_1) + 13.81(x_2) + 15.27(x_3) + 0.07(x_4) + 0.33(x_5)$$

where ( $x_1$ ) represents the density of sexually mature *H. plumbeum*, ( $x_2$ ) and ( $x_3$ ) the respective mean temperatures during May and June (months with highest morbidity), and ( $x_4$ ) and ( $x_5$ ) the total precipitation in May and June, respectively.

The prevalence of sexually mature *H. plumbeum* (y) is derived from the following equation:

$y = 1.039 + 0.054(x_1) - 0.228(x_2) - 0.020(x_3)$ ; where ( $x_1$ ) represents the number of sexually immature *H. plumbeum* stages in the previous year, ( $x_2$ ) the mean winter air temperature, and ( $x_3$ ) the depth of frozen ground. References 12: 11 Russian, 1 Western.

USSR

UDC 616.988.25-022.395.42-036.21-078:576.895.143.421

IXODES PERSULCATUS P. SCH. IN THE SOUTHERN BORDER OF TICK-BORNE ENCEPHALITIS AREA (KUYBYSHEV OBLAST)

Moscow MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI in Russian  
No 1, 1978 pp 12-15 manuscript received 10 May 77

KUKSGAUZEN, N. A., VORONTSOVA, T. A., PCHELKINA, A. A. and GUSEVA, E. G.,  
Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy  
of Medical Sciences USSR, Moscow

[Abstract] Investigations were conducted in the Pokhvistnevskiy rayon (Kuybyshev oblast) to establish the carrier state of *Ixodes persulcatus* ticks vis-a-vis tick-borne encephalitis. The studies were conducted during the first 10 days of June 1973 in 6-10 km<sup>2</sup> areas of 2 linden and 2 oak forests; imago counts for the linden forests were 5.3 and 8.1 specimens per flag-hour, and 1.8 and 1.9 for the 2 oak forests. Testing of 25 samples for carrier state on albino mice yielded 5 positive samples limited to the linden forests. The findings point clearly to the differences existing between the populations of *I. persulcatus* in different geobotanical environments and, consequently, to the relative threat of clinical cases of tick-borne encephalitis. Figures 1; references: 7 Russian.

USSR

UDC 612.017.1+616.981.21]-057:625.1(571.5)

NATURAL IMMUNITY AND STREPTOCOCCAL INFECTIONS AMONG WORKERS ON THE WESTERN SECTION OF THE BAIKAL-AMUR RAILWAY [BAM]

Moscow TERAPEVTICHESKIY ARKHIV in Russian No 2, 1978 pp 98-101 manuscript received 15 Aug 77

YELOZOVA, S. M., KIBORT, R. V., GORYAYEV, YU. A., LABINSKAYA, A. S., FEDOSEYEV, A. P. and NECHAYEV, V.I., Institute of Rheumatism, Academy of Medical Sciences USSR and the Departments of Propeudeutics of Internal Diseases and Microbiology, Irkutsk Medical Institute

[Abstract] Clinical and laboratory studies were conducted from 1975 on 3440 workers in the western section of BAM [Baikal-Amur Railway] to detect apparent and inapparent streptococcal infections, as well as to evaluate the state of natural immunity among these individuals. The percentage of males among the workers under study was 58.6%; 78% of the work force was in the 20-40 years age bracket. Evaluation of complement levels, lysozyme, beta-lysins, etc., showed that natural immunity was compromised under the severe climatic conditions and that this was particularly noticeable during the first six months after arrival from southern and western regions of the USSR (42-54% of the workforce). Concomitantly during the first year at work group A beta-hemolytic streptococci were isolated from 16.9-27.9% of the workers, and serodiagnosis revealed streptococcal antigens in 31.0-41.0% of the cases, as well as antibodies against streptococcal L-forms in 20-34.2% of the cases. During the first two years at work inapparent streptococcal infections prevailed (14.5-19.2% of workers), to be later replaced by increased morbidity ascribable to frank infections in parallel with improvements in laboratory parameters reflecting natural immunity. The findings indicate that BAM workers are especially susceptible to later development of rheumatic diseases. References: 6 Russian.

USSR

UDC 616-006-092.9:612.017.1

RELATIONSHIP BETWEEN ANTIBODIES AGAINST THE COMMON ENTEROBACTERIAL ANTIGEN AND INHIBITION OF CARCINOGENESIS

Moscow PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA in Russian No 1, 1978 pp 58-61 manuscript received 1 Oct 76

MONTSEVICHYUTE-ERINGENE, YE. V., Oncology Scientific Research Institute, Ministry of Health Lithuanian SSR, Vil'nyus

[Abstract] It has been established that various nonspecific factors, including injections of carcinogens, may stimulate formation of antibodies

directed against the common enterobacterial antigen and, furthermore, that an inverse relationship may prevail between carcinogenesis and the presence of such immunoglobulins. The present studies conducted with 414 outbred male and female rats demonstrated that subcutaneous injection of benz[a]pyrene (BP) or 3-methylcholanthrene (5 mg) resulted in the appearance of such antibodies in 55.7% of the rats, vs. 20.8% among uninjected controls. In addition, presence of such antibodies in rats prior to injection of BP prolonged the latent period to  $159 \pm 6.8$  days for the appearance of solid tumors vs.  $138 \pm 6.6$  days in antibody-free controls, with corresponding 6 month tumor masses of 35.5 and 90.9 gm ( $P < 0.02$ ). However, induction of an antibody response after BP administration did not alter the course of carcinogenesis. Passive immunization of animals with antibodies directed against the common antigen of *E. coli* and *B. faecalis* alcaligenes 415 (Bfa) initially retarded neoplastic development. Figures 1; references 17: 4 Russian, 1 Lithuanian, 12 Western.

USSR

UDC 614.4:615.9

PARTICIPATION OF SANITARY-EPIDEMIOLOGIC STATIONS AND DEPARTMENTAL  
LABORATORIES IN TOXICOLOGIC SURVEYS

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 1, 1978 pp 50-51  
manuscript received 27 Jul 77

ZHUKOVSKIY, V. G. and VALETKO, I. I., Republican Sanitary-Epidemiologic  
Station

[Abstract] A brief discussion is provided of the importance of collaboration between sanitary-epidemiologic stations and industrial toxicology laboratories, with the personnel of the former training and alerting the latter to potential toxic materials that may threaten public health. Pertinent examples of such cooperation are provided for plastics plants in Minsk and of the resultant benefit to public health.

USSR

UDC 613.62:616.1-02

CHANGES IN THE CARDIOVASCULAR SYSTEM AS A RESULT OF CHRONIC POISONING  
WITH METHYLMETHACRYLATE

Kiev VRACHEBNOYE DELO in Russian No 2, 1978 pp 132-135

DOROFYEVA, YE. D., ARZYAYEVA, YE. YA and KLIMOVA, E. I., Scientific  
Research Institute of Labor Hygiene and Occupational Diseases, Gorky

[Abstract] Heart function tests and EKG studies were conducted on a group of 47 male and 3 female workers exposed for 10 or more years to methylmethacrylate (MMA); the average age of the subjects was 39.4 years. Results of these evaluations showed that 24 patients had various forms of arrhythmia (sinus arrhythmia, sinus tachycardia, and infrequently sinus bradycardia), while 30 patients presented with myocardial repolarization abnormalities (particularly evident on leads V2-V4) and half of these had a diffuse T wave depression. Since function test excluded coronary insufficiency MMA was implicated as the exogenous etiologic agent of these abnormalities. A 3-7 year follow-up showed marked improvements following termination of exposure to MMA, although some residual changes in some of the subjects indicated myodystrophic cardiosclerosis. In addition, experimental studies with 150 albino male rats (180-200 gm) exposed to MMA inhalation in doses equivalent to 1/5-1/2 LD<sub>50</sub> for various periods of time developed hypertension, elevated blood levels of catecholamines, depressed blood levels of K<sup>+</sup>, arrhythmia and T wave depression, and serum enzyme

patterns indicative of direct heart damage. The mechanism of MMA toxicity seems to involve increased sensitization of beta-adrenergic receptors and alterations in water-electrolyte balance. References: 6 Russian.

USSR

UDC 599.537:591.432.2:591.473.32

MUSCULATURE OF OROPHARYNX AND TONGUE IN DOLPHINS

Kiev VESTNIK ZOOLOGII (Zoological Record) in Russian No 1, 1978 pp 88-90  
manuscript received 25 Oct 1975

BRONSKIY, A. A., GILEVICH, C. A., Institute of Zoology, Ukrainian SSR,  
Academy of Sciences

[Abstract] Three species inhabiting the Black Sea and Sea of Azov were examined: *TURSIOPS TRUNCATUS*, *PHOCAENA PHOCAENA* and *DELPHINUS DELPHIS*. The age and sex were not determined. The chief characteristic of the nasopharynx is the presence of two muscular "tubes." The hypoglossus is the most powerful muscle; it forms a tube in this section of the throat. The styloglossus lies lateral to the hypoglossus. The genioglossothyre-  
oideus forms the inner part of the "tubes." The majority of its muscle fibers are connected to an elastic membrane of the oropharynx. The *M. transversusligavae* lies directly under the lingual fascia and the *M. verticalis* forms a large bundle beginning at the lingual fascia at the rear of the tongue. The septum linguae in dolphins is quite different than in land mammals. At the tip of the tongue it is one-third as thick as the tongue and gets thicker towards the back. The fact that dolphins swallow their food whole is a decisive factor in the formation of these muscles. Figures 3; references 5: 2 Western, 3 Russian.

USSR

UDC 599.745.3:591.5

LOCALITY OF KARAGA AND ANADYR POPULATIONS OF BERING SEA HARBOR SEALS  
(*PHOCA VITULINA LARGHA*)

Moscow ZOOLOGICHESKIY ZHURNAL in Russian No 2, 1978 pp 280-287

GOL'TSEV, V. N., YURAKHNO, M. V., and POPOV, V. N., Magadan Division,  
Pacific Ocean Scientific Research Institute of Fisheries and Oceanography,  
and Simferopol' State University

[Abstract] Morphological and helminthologic data showed that populations of *Phoca vitulina largha* which inhabit Karaga and Anadyr bays show significant differences. Variation was evident in nine craniological features and the number of labial vibrissae. Morphological examination of 403 animals from Karaga and 391 from Anadyr was done from 1966-73. Helminthologic data was collected from 122 animals inhabiting Karaga and 130 from Anadyr in spring of 1966, 1967 and 1972; different age groups were represented. The populations have suffered in the past due to commercial



exploitation. In helminthologic examination, there were quantitative and qualitative variations. Only Karaga seals had the trematode Orthosplanchnus pygmaeus and cestode Diplogonoporus tetraapterus, while trematode Orthosplanchnus arcticus, cestode Dipyllobothrium sp., and nematode Contracaecum osculatum were unique to Anadyr Bay seals. Other helminths common to both seal populations were distributed in different amounts in the two seal species. Figures 3; references: 13 Russian.

USSR

UDC 599.537:591.473.3:578.087.75

#### MUSCLE WEIGHT CHARACTERISTICS IN BLACK SEA DOLPHINS

Moscow ZOOLOGICHESKIY ZHURNAL in Russian No 2, 1978 pp 272-279

SOKOLOV, V. YE. and RODIONOV, V. A., Institute of Evolutionary Morphology and Animal Ecology, Academy of Sciences USSR (Moscow), and Biology Faculty of Moscow State University

[Abstract] The structure and weight of muscles from 19 Black Sea dolphin specimens were examined: four bottle-nosed dolphins (Tursiops truncatus), five common dolphins (Delphinus delphis), and ten common porpoises, five of which were young (Phocoena phocoena). Muscles were weighed without tendons and fat. The dolphins possess 110 separate muscles. Muscles of the spinal column were heaviest (1/2-1/3 of all musculature). The complex of head and neck muscles intertwined with muscles of spine and tail was examined (*m. longissimus*). The *m. semispinalis capitis* was highly developed for head lifting (0.8% body wt.). Neck muscles were shorter than in land mammals. Most developed were the tail muscles, especially the lifting muscles. Tail, shoulder and abdominal muscles were 11.24, 0.88 and 1.92% body weight in young common porpoises, 17.02, 1.01 and 2.92% in mature porpoises, 22.60, 1.14 and 3.39% in mature common dolphins, and 17.91, 1.26 and 3.83% in mature bottle-nosed dolphins. Muscle weights were compared to those in land mammals with observations on adaptive changes of the cetaceans. Figure 1; references 36: 23 Russian, 13 Western.

USSR

UDC 576.851.45.098:31:577.152.271

PHOSPHOFRUCTOKINASE ACTIVITY OF THE PLAGUE BACILLUS

Moscow VOPROSY MEDITSINSKOY KHIMII in Russian No 1, 1978 pp 127-131  
manuscript received 22 Feb 77

RUDNIK, V. S., Irkutsk Antiplague Scientific Research Institute of Siberia  
and the Far East

[Abstract] Since phosphofructokinase (PFK) is a key regulatory enzyme in glycolysis, studies were undertaken to determine the cultural conditions which affect PFK activity in the plague bacillus. Conditions are described for the growth of a virulent strain 1978 and a vaccine strain EB-229 in Hottinger's broth or agar plates and determination of PFK activities. Results of studies with ultrasonically lysed cells showed much greater activity on solid agar medium than in broth cultures, and at 28° than at 37°C ( $P < 0.01$ ). Aeration of broth cultures diminished PFK activity only in the case of 1978 at 28°. Addition of 1% glucose to the medium decreased PFK activity in 1978 and increased it in EB-229. Furthermore, PFK was inhibited by ATP, citrate, 3-phosphoglycerate,  $Ca^{++}$  and, especially,  $Mn^{++}$ . Monovalent cations ( $K^+$ ,  $Na^+$ ,  $NH_4^+$ ) were without effect. PFK activity was at a maximum in medium containing 0.2-0.8 mM ATP. AMP and to a lesser extent ADP alleviated the inhibitory effects of ATP and citrate; in the presence of noninhibitory concentrations of ATP, PFK activity was depressed by AMP and ADP. The results indicate glycolysis in the plague bacillus is subject to a certain degree of control by the products of the Krebs cycle. Figures 1; references 17: 3 Russian, 14 Western.

USSR

UDC 576.895.775;576.858.27

EFFECTS OF DIGESTION ON VIABILITY OF PLAGUE BACILLI IN THE FLEA XENOPSYLLA GERBILLI MINAX

Leningrad PARAZITOLOGIYA in Russian No 6, 1977 pp 474-479

VASHCHENOK, V. S. and TARAKANOV, N. F., Leningrad and Taldy-Kurganskaya  
Plague Control Stations

[Abstract] Experimental conditions are described which were used to investigate the effects of digestion on the plague bacillus in the flea (*Xenopsylla gerbilli minax*) fed on infected gerbils. Histologic studies revealed that, initially, while the blood clots remained intact in the flea digestive system, multiplication of the plague bacillus proceeded at a rapid pace; digestion and dissolution of the clot led to a marked

reduction in the number of bacilli seen per microscopic field. Finally, complete dissolution of the clots was again marked by an increase in the number of plague bacilli which occurred on day 2 after the feeding in fleas maintained at 23-24°, and on day 3 in fleas kept at 5-6°. Morphology of the bacilli varied from typical after ingestion to ovoid during maximum decrease in numbers, to coccobacillary at the end of clot digestion. Bacilli were always present in the proventriculus and the proximal portion of the esophagus and absent from the midgut and distal intestinal tract when their numbers were generally depressed. Figures 11; references 17: 12 Russian, 5 Western.

USSR

UDC 616.921.5-06:616.8:616-073.731-073.97

CLINICAL RHEOENCEPHALOGRAPHIC SIGNS IN INFLUENZA PATIENTS WITH PRONOUNCED NERVOUS INVOLVEMENT

Kiev VRACHEBNOYE DELO in Russian No 1, 1978 pp 146-149

VASHCHENKO, M. A. and MURAVSKAYA, L. V., Kiev Research Institute of Infectious Diseases, Ministry of Health Ukrainian SSR

[Abstract] Rheoencephalographic (REG) studies were performed on 217 influenza patients, 18-34 years of age, 144 of whom presented with evidence of CNS involvement (73 with neurologic syndromes, including 28 with meningeal or meningoencephalic, 16 with serous meningitis, and 29 with meningoencephalitis). Control data were provided by 32 clinically healthy subjects 18-35 years of age. The REG findings were interpreted to indicate that patients with neurologic symptoms suffered from cerebral hypertension resulting from changes in cerebral hemodynamics due to changes in vascular permeability and influx of CSF into the vascular compartment.

USSR

UDC 616.91(477.54)

CASES OF HEMORRHAGIC FEVER IN THE KHARKOV OBLAST

Kiev VRACHEBNOYE DELO in Russian No 1, 1978 pp 150-153

KARYUK, S. YE. and ANDREYEVA, E. V., Department of Infectious Diseases, Ukrainian Institute for the Advanced Training of Physicians and the Second Medical Sanitary Section, Ministry of Health USSR

[Abstract] A brief review is provided of the etiology, nature, pathogenesis, and geographic distribution of Crimean Hemorrhagic Fever (CHF); included are 5 cases reported for the first time in the Kharkov oblast, two of which are covered in detail. All cases presented with nephropathology and

fully recovered. The mild nature of the disease suggests that there are many unrecognized cases in the Kharkov oblast and that clinicians should be on the alert for the pathognomonic symptoms. Figures 1.

USSR

UDC 616.981.553-07-037.7

#### ERRORS IN THE CLINICAL DIAGNOSIS OF BOTULISM

Moscow KLINICHESKAYA MEDITSINA in Russian No 11, 1977 pp 112-115 manuscript received 7 Dec 76

SHAMOV, YU. A., Department of Infectious Diseases and Epidemiology, Dagestan Medical Institute, Makhachkala

[Abstract] Evaluation was made of the diagnosis, treatment and outcome of 56 cases diagnosed as botulism (25 males, 31 females, 5-70 years of age). Re-evaluation demonstrated that 27 of the diagnoses were erroneous. Of the remaining 29 cases of botulism 8 ended fatally; most of the latter included cases with late diagnosis and late hospitalization. The rather poor record of diagnosis and management of botulism is due to decreased physician alertness to this disease and failure to recognize the specific symptoms. However, in view of the increase in popularity of home canning, physicians should be aware that in this particular disease entity anamnestic data are equally important to the actual clinical symptoms. References 14: 11 Russian, 3 Western.

GDR

CAUSES OF INTOXICATION OF FARM ANIMALS WITH SPECIAL REFERENCE TO HERBICIDES AND PESTICIDES

Jena MONATSHEFTE FÜR VETERINÄRMEDIZIN IN German Vol 33, No 4, 15 Feb 78  
pp 122-123 manuscript received 6 Jun 77

HOERNICKE, E., Bezirk Institute for Veterinary Affairs, Potsdam

[Abstract] The Bezirk Institute for Veterinary Affairs, in Potsdam has been empowered to collect and evaluate all toxicological data on the basis of detailed monthly reports from all the veterinary districts of the GDR and to serve as the highest authority for consultation and diagnosis. More than 90% of animal poisoning cases have occurred by ingestion, 80% of them with the fodder. Cutaneous and aerogenic poison uptake often accompanies the oral one. In cattle, organophosphates were responsible for 37% of the poisoning, chlorinated hydrocarbons (DDT) for 17%. Poisoning with Toxaphen (polychlorinated camphene) was frequent. Other damages were caused by chlorate-containing total herbicide, copper-containing sprays, DNOC, Diquat, grain laced with mercury and rodenticides containing oxycoumarine. The latter caused 67% of the poisoning of swine, followed by mercury. Sheep poisoning was mostly caused by agricultural insecticides, fungicides and herbicides. In fowl, 96% of the poisoning was caused by zinc phosphide (poisoned grain, rodenticide). Mostly private farms were affected with practically no damage in commercial chicken farms. The poisoning of wild animals and fishes (Toxaphen) must be given greater attention in the future. Note is taken of the danger of subacute and chronic poisoning by insecticides and herbicides as well as by mercury-treated grain which is difficult to diagnose, lowers the rate of reproduction of the afflicted animals and appears in human food of animal origin. Insecticides and herbicides are of great value in agricultural production while their danger calls for strict preventive measures and monitoring. It is pointed out that the incidence of acute poisoning did not increase with the growing use of these compounds. No references.

GDR

CARCINOGENIC ACTION OF HERBICIDES, PESTICIDES AND THEIR METABOLITES

Jena MONATSHFTE FÜR VETERINÄRMEDIZIN in German Vol 33, No 4, 15 Feb 78  
pp 128-130 manuscript received 23 May 77

WARZOK, R., SCHNEIDER, J., BLAUFUSS, E. M. and SCHWARZ, H., "Preventive Oncology" Research Group, Institute of General Pathology and Pathological Anatomy, Medical Academy, Erfurt

[Abstract] Rats were used to test the carcinogenicity of a metabolic product of Fenuron, 3-phenyl-1-methyl urea (PMU) and of its nitrosation product, 3-phenyl-1-methyl-1-nitroso urea (PMNU).

- Group 1: 25 rats - intragastric PMU at 2 week intervals
- Group 2: 20 rats - standard fodder containing 0.5%  $\text{NaNO}_2$  and 0.5% PMU for 50 days
- Group 3: 25 rats - intragastric 150 mg PMU and 50 mg  $\text{NaNO}_2$ /kg body weight
- Group 4: - 50 mg/kg body weight PMNU at 2 week intervals
- Group 5: - single subcutaneous injection of 250 mg/kg PMNU

Results after 330 days:

- Group 1: no tumors found as yet
- Group 2: 2 kidney tumors. Most rats are still alive
- Group 3: no tumors in 4 rats killed before 137 days. Benign or malignant gastric tumors in all others which died later or were killed in a moribund state
- Group 4: 12 rats died so far, all had gastric tumors
- Group 5: local sarcomas at the site of injection. Two rats killed after 195 days had tumors the size of a goose egg. Most of the currently living animals have palpable subcutaneous tumors.

Although the experiment is still in progress, current conclusions are:

- a) PMU has no or at the most a very slight cancerogenic effect,
- b) On simultaneous administration of PMU and  $\text{NaNO}_2$ , PMNU is formed in the stomach of the animals,
- c) PMNU has a strong cancerogenic effect manifested mainly at the site of application or formation.

Attention is called to the dangers of PMNU in man. Since  $\text{NaNO}_2$  is normally present in saliva, can be present in numerous food products and in water, PMNU formation after PMU ingestion must be considered a valid possibility. References 5: 3 East German, 2 Western.

GDR

#### LATE DAMAGES BY ORGANOPHOSPHORUS PESTICIDES

Jena MONATSHEFTE FÜR VETERINARMEDIZIN in German Vol 33, No 4, 15 Feb 78  
pp 130-132 manuscript received 21 May 77

LOHS, Kh., GIBEL, W. and LOJACK, S., Central Institute for Cancer Research,  
Research Station for Chemical Toxicology, Academy of Sciences of the GDR

[Abstract] Reference is made to several rather recent studies on the delayed psychopathological-neurological consequences as well as the possible carcinogenic, mutagenic, hepatotoxic and hematotoxic effects of organophosphorus compounds. Such results have often been exaggerated by the press creating an undesirable emotional climate for an unbiased evaluation of risks versus benefits. The authors' own studies indicate that much more detailed biochemical studies are needed to arrive at a realistic assessment of risks and to follow up on questions and suspicions raised by the existing studies. References 12: 3 East German, 9 Western.

GDR

#### HYDROTOXICAL ASSESSMENT OF SELECTED GROUPS OF PESTICIDES

Jena MONATSHEFTE FÜR VETERINARMEDIZIN in German Vol 33, No 4, 15 Feb 78  
pp 132-136 manuscript received 23 May 77




TSCHEU-SCHLÜTER, Marlis, Institute of Water Management, Berlin

[Abstract] An introduction to the methods used in hydrotoxicological studies is followed by a report on the acute toxicity of selected groups of pesticides toward certain representative aquatic organisms. Estimation of the toxicity of a water pollutant was made on the basis of threshold concentration as follows:

Groups	Threshold conc. mg/ml	Degree of Toxicity
Group A	> 500	scarcely toxic
Group B	100-500	mildly toxic
Group C	10-99	moderately toxic
Group D	1-9	highly toxic
Group E	< 1	extremely toxic

The results of water toxicological measurements, done over the past 15 years, are summarized in the attached graphs. In order to protect surface waters from pollution by toxic chemicals, it is recommended that the degree of fish toxicity of a given substance be also quoted in the plant protection register. Reference is made to the water contaminant catalogue, published by the Institute of Water Resource Management of the GDR in 1975, as being the first one to provide a comprehensive characterization of water pollutants.



Legend to the graphs:  - border concentration under laboratory conditions  
 - threshold concentration  
 - LC<sub>50</sub> and LC<sub>90</sub> i.e. 50 and 90 % growth inhibition

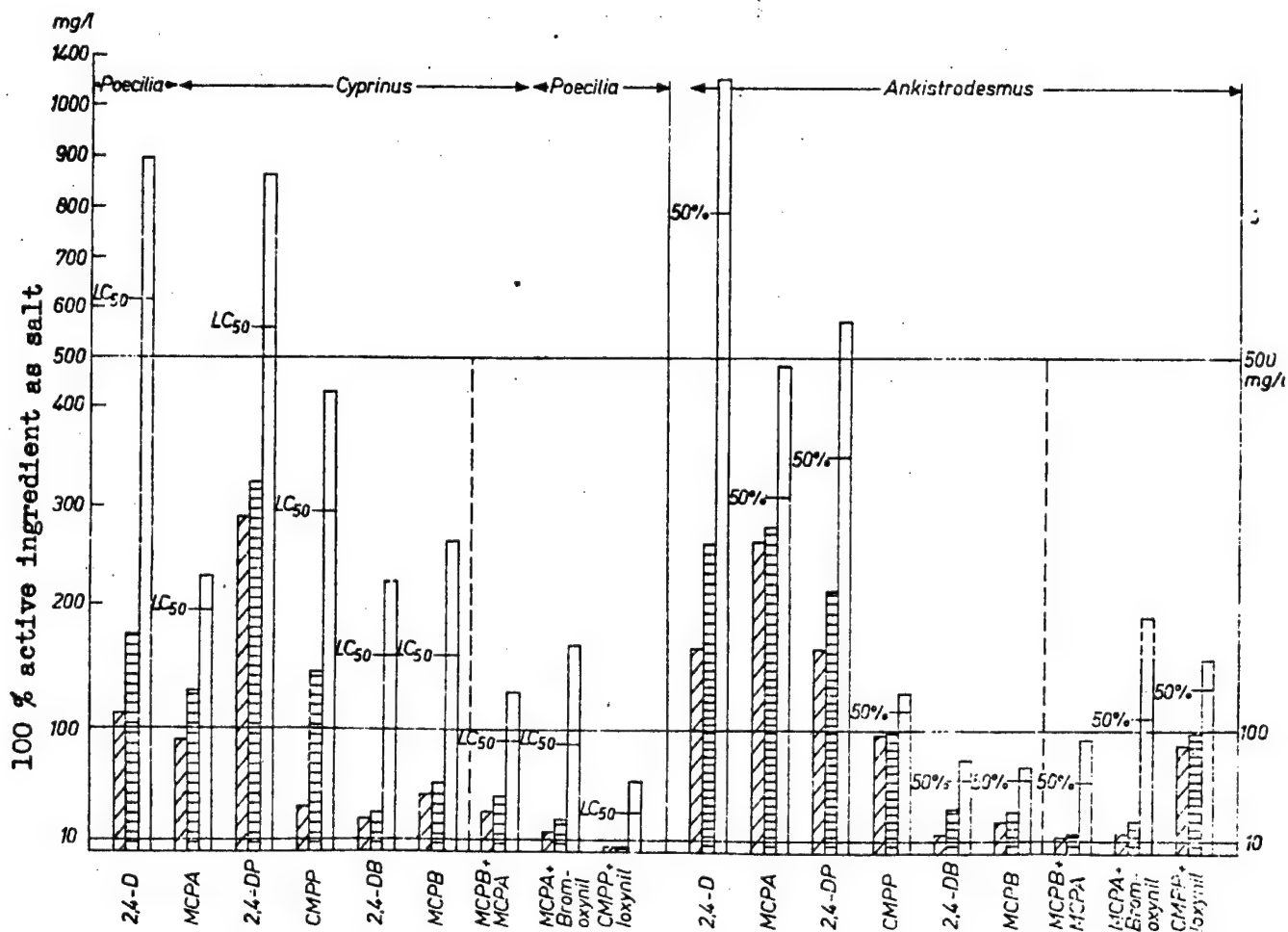


Abb. 1 Toxicity of synthetic plant herbicides to water organisms

The chart displays the degradation of 12 herbicides in soil over 120 days. The y-axis represents concentration in mg/l (0-4) and µg/l (0-800). The x-axis lists the herbicides. For each herbicide, two bars are shown: a hatched bar for 'Triazines' and a white bar for 'urea herbicide'. A horizontal line at 1 µg/l (100 mg/l) is labeled '50%'. A vertical line at 120 days is labeled '120 days'.

Herbicide	Triazines (mg/l)	Urea herbicide (mg/l)
Simazine	~2.5	~1.2
Propazin	~0.7	~0.58
Atrazine	~0.2	~0.32
Desmetryn	~0.1	~0.52
Prometryn	~0.05	~0.65
Ametryn	~0.05	~0.3
Fenuron	~0.48	~0.52
Monolinuron	~0.15	~0.18
Metabromuron	~0.05	~0.1
Monuron	~0.05	~0.75
Linuron	~0.05	~0.08
Diuron	~0.01	~0.035

[illegible]

Fig 3.

Fig. 4. Toxicity of chlorinated hydrocarbons to aquatic animals

(*Salmo gairdneri* = Regenbogenforelle, *Lepomis macrochirus* = Blauer Sonnenbarsch, *Asellus aquaticus* = Wasserrassel, *Chironomus plumosus* = rote Zuckmückenlarven, *Daphnia magna* = Großer Wasserfloh)

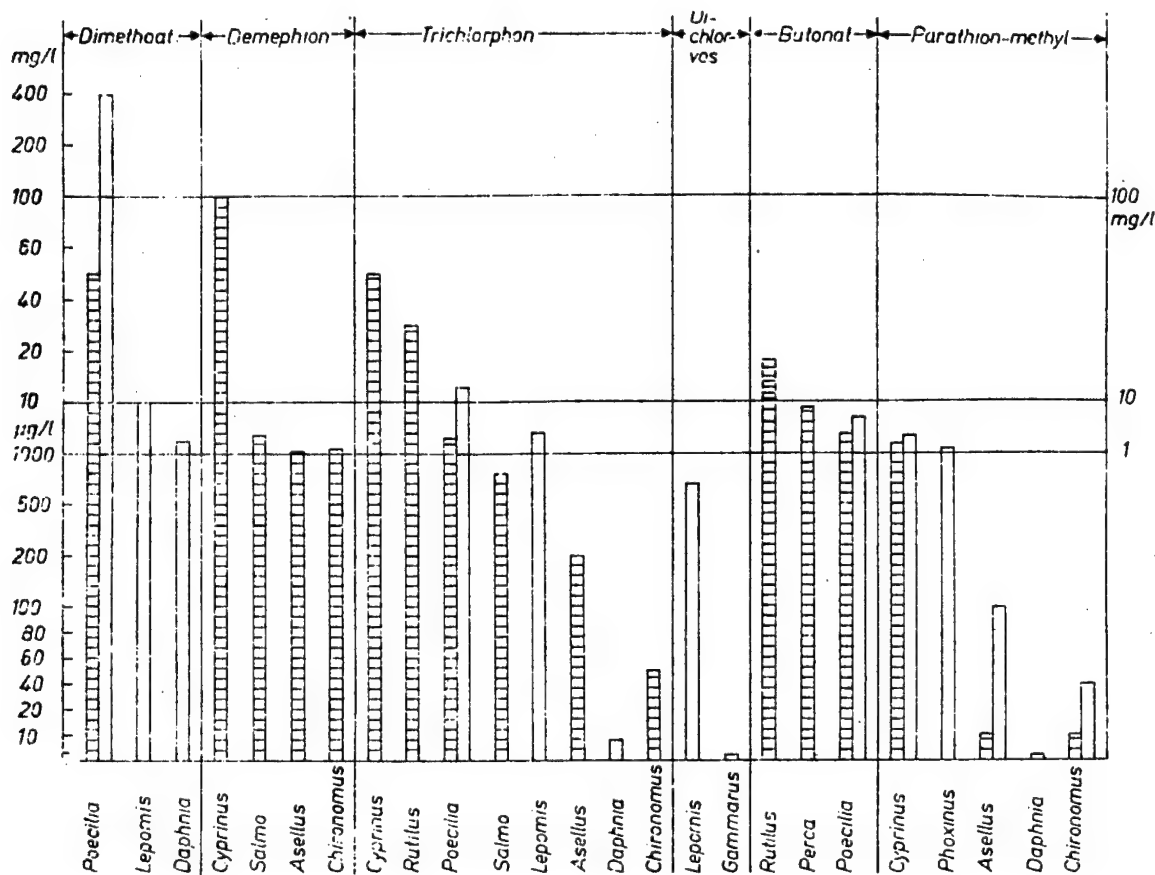
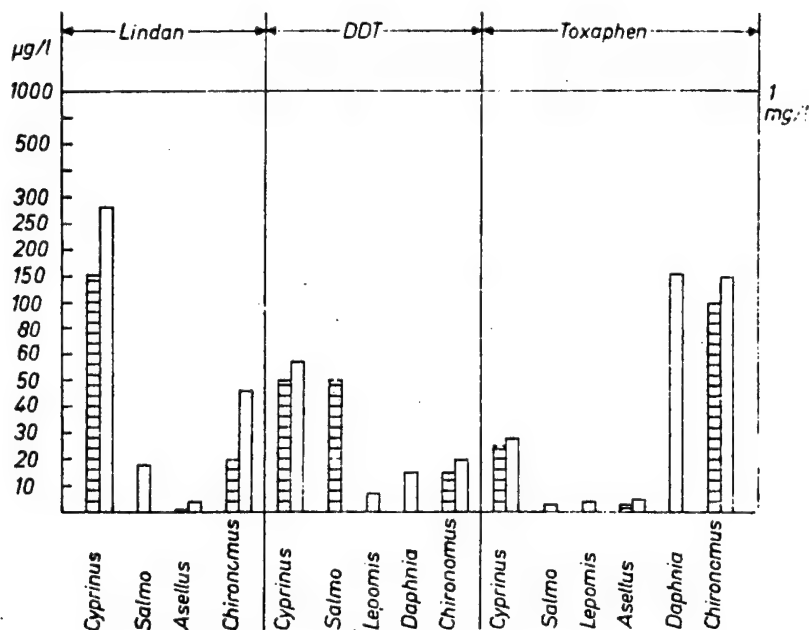


Fig. 5. Toxicity of organic phosphate compounds to aquatic animals

(*Rutilus rutilus* = Plötze, *Perca fluviatilis* = Barsch, *Phoxinus phoxinus* = Elritze, *Gammarus lacustris* = Flohkreb, die übrigen Arten wie auf Abbildung 4)

References 13: 12 East German, 1 Western

GDR

CASES OF ACUTE INTOXICATION BY HERBICIDES, PESTICIDES, TIMBER PRESERVATIVES AND FERTILIZERS BETWEEN 1966-1975--ANALYSIS OF THE CASE MATERIAL OF THE TOXICOLOGICAL ADVISORY CENTERS IN BERLIN, LEIPZIG AND MAGDEBURG

Jena MONATSHEFTE FÜR VETERINARMEDIZIN in German Vol 33, No 4, 15 Feb 78  
pp 142-144 manuscript received 23 May 77

LOESSNER, B., REX, Helga, WIEZOREK, W. D. and GÖRISCH, V, Institutes of Pharmacology and Toxicology of the Medical Academy of Magdeburg, of Humboldt University in East Berlin and of Karl Marx University in Leipzig

[Abstract] The work of the three centers covers the entire GDR. From 24,335 consultations with the centers, 7.04% of the cases involved contact or intake of the substances under study. The distribution of chemicals involved in the case material of the centers is depicted in Fig. 3.

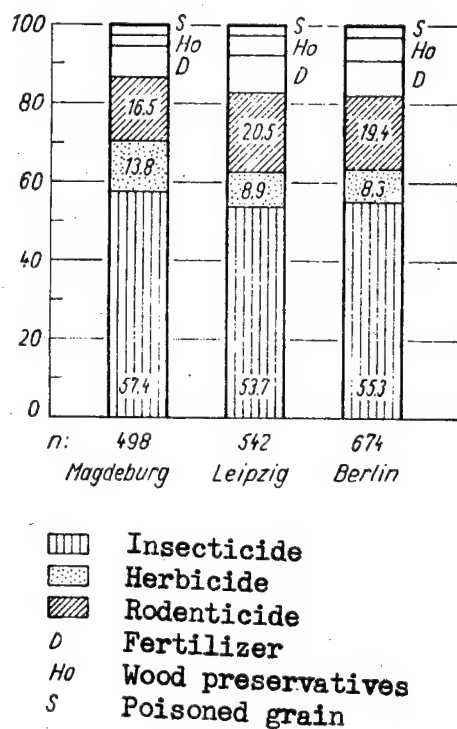
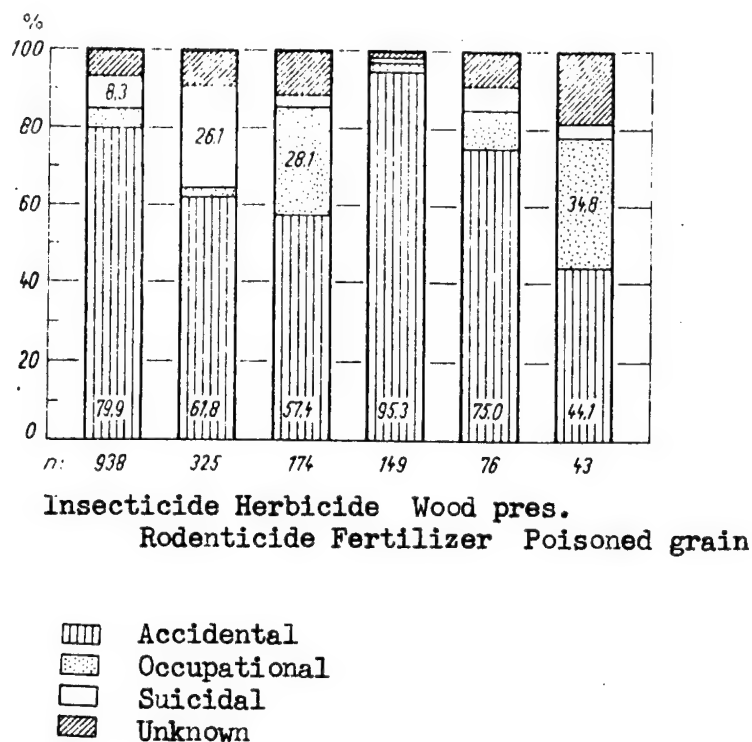


Fig. 3.

Intoxication occurs by accident, by attempts at suicide and through occupational use. Fig. 4. gives the distribution of these cases:



Over the 10-year period evaluated, 129 cases of severe acute poisoning were registered; insecticides: 84, pesticides: 30, rodenticides: 12. Accidents can be largely prevented by careful storage and handling. An intensive education of small users and energetic enforcement of safety procedures is of critical importance. In spite of great increases in the use of these substances during the 10 years, there was no corresponding increase in the incidence of acute poisoning. Figures 4.

USSR

UDC 616.36+616.61]-008.64-036.11-02:615.9

ACUTE HEPATORENAL INSUFFICIENCY IN CERTAIN RARE AND ACUTE EXOGENOUS  
POISONINGS

Moscow KLINICHESKAYA MEDITSINA in Russian No 3, 1978 pp 125-128 manuscript  
received 6 May 77

RIMALIS, B. TS. and BOCHKARNIKOV, V. V., Laboratory of Acute Hepatorenal  
Insufficiency, Scientific Research Institute of Medical Emergencies imeni  
N. V. Sklifosovskiy, Moscow

[Abstract] Five cases were presented of hepatorenal insufficiencies  
accompanying poisonings with agents in which such a syndrome is quite often  
not perceived. The cases in question involved zinc phosphide (rat poison),  
nitrobenzene, Freon, chlorpromazine, and sulfathiazole. The cases were  
marked by homeostatic imbalance and successful treatment rested on early  
recognition of hepatorenal insufficiency (gastric lavage, catheterization  
of the umbilical vein, hemodialysis, blood transfusion, etc.). In addition,  
4 cases of poisoning with a 4% oxalic acid in alcohol solution (a cosmetic  
preparation) were discussed with a view toward presentation of the outstand-  
ing symptomatology: gastroenterocolitis, nausea, vomiting, abdominal pains,  
hypertension (180-220 over 120-140 mmHg), headache, scleral petechiae,  
oliguria/anuria, hematuria, acid-base imbalance, etc. References: 12  
Russian.

USSR

UDC 613.632:576.75:612.017.1

AUTOIMMUNE COMPONENT IN THE PHYSIOLOGIC EFFECTS OF ORGANIC CHLORINE COM-  
POUNDS

Kiev VRACHEBNOYE DELO in Russian No 12, 1977 pp 110-114

SEMENCHEVA, E. M., Department of Experimental Chemical Toxicology, All-  
Union Scientific Research Institute for Hygiene and Toxicology of Pesti-  
cides, Polymers and Plastics, Kiev

[Abstract] A brief review is presented of the role of autoimmunity in  
chemically-induced toxic changes, together with pertinent experimental  
results obtained from studies on female Chinchilla rabbits fed hexachloro-  
cyclohexane or DDT for 3-4 months (1/50 LD<sub>50</sub>). The results showed that the  
administration of these chloroorganic compounds elicited an autoimmune  
response consisting of autoantibodies against erythrocytes and liver cells.  
Simultaneously noted changes consisted of an increase in immunocompetent  
cells in the peripheral blood, and plasma cell and lymphoid infiltration of

lymph nodes, spleen, and the liver. Nonspecific esterase, acid phosphatase, and acid ribonuclease activities of the lysosomal fraction of lymphoid elements increased. In addition, immune lymphocytes from the experimental females exposed to DDT or hexachlorocyclohexane acquired cytotoxicity for hepatocytes from treated females and untreated control rabbits. Mating of the exposed females with normal males yielded progeny with signs of hepatic pathology: accumulation of eosinophils and plasma cells, and depression of extramedullary hematopoiesis. In addition, nucleoprotein fractions isolated from the livers of the affected neonates possessed antigenic moieties which were absent in the case of normal neonatal rabbits. References: 29 Russian.

USSR

UDC 616-006-08:615.277.3]-092

#### ANTITUMOR ACTIVITIES OF CERTAIN ARYL-2-CHLOROETHYLAMINES

Leningrad VOPROSY ONKOLOGII in Russian No 12, 1977 pp 92-94

MONTSEVICHYUTE-ERINGENE, YE. V., doctor of medical sciences, senior scientist, Vilnyus

[Abstract] A previously described in vivo/in vitro method for evaluating the effectiveness of antineoplastic preparations (this author, VOPROSY ONKOLOGII, No 10, 1977 pp 73-77) was employed for evaluating 8 new derivatives of N-hydroxy-aryl-2-chloroethylamines (I) and 8 alkylating acylamino acids (II) vis-a-vis rat sarcoma-45. Coded agents in category I yielded 4-98% tumor inhibition under in vivo conditions and 2-100% under in vitro conditions; category II agents inhibited tumor growth to the extent of 53-96% and 94-100%, respectively. The results showed 81.2% correlation between in vivo and in vitro data and support the contention that the in vivo/in vitro test constitutes a useful screening approach for anti-neoplastic agents. Tables 1; references 7: 6 Russian, 1 Lithuanian.

USSR

UDC 616-006-02:54

CARCINOGENICITY OF DIAPHEN NN

Leningrad VOPROSY ONKOLOGII in Russian No 12, 1977 pp 75-77

PYLEV, L. N., KULAGINA, T. F. and SMETANIN, E. YE., Carcinogen Laboratory, Department of Carcinogenesis, Oncology Science Center, Academy of Medical Sciences USSR

[Abstract] Experiments were undertaken to obtain further information on the blastomogenic effects of diaphen NN in studies on female CC57W mice, ca. 20 gm in weight. The results showed that of the 43 initial mice receiving 40 mg of diaphen NN subcutaneously per week for 20 months changes indicative of leukoses began to be noted by 4.5 months; at the end of the experimental period 65% of the mice developed either leukoses or solid sarcomas. Another group of mice received similar doses intragastrically for 25.5 months according to several schedules. Leukoses and hepatic tumors developed in 39% of the animals of the latter group. Similar incidence of leukosis and solid tumors were noted in 36% of control animals followed for 14-28 months, indicating that the carcinogenic potential of diaphen NN is low. Figures 1; references: 1 Russian.

USSR

UDC 616.36-099-008.9+616.36-057

HEPATIC CARBOHYDRATE METABOLISM IN CHRONIC POISONING WITH A LINDANE-PHOSPHAMIDE MIXTURE (EXPERIMENTAL STUDIES)

Tashkent MEDITSINSKIY ZHURNAL UZBEKISTANA in Russian No 12, 1977 pp 32-35

SAIDKARIMOV, S. K. and KARIMOV, V. A., doctors of medical sciences, KHALIKOV, T. R., candidate of medical sciences and DZHAPAROV, A. K., Tashkent Institute for the Advanced Training of Physicians, Uzbek Research Institute of Sanitation, Hygiene and Occupational Diseases, and the Tashkent Order of the Red Banner of Labor Medical Institute

[Abstract] Experiments were conducted on 30 male chinchilla rabbits, 2.0-2.5 kg, to determine the effects of prolonged intragastric administration of 1/20 LD<sub>50</sub> of an organochlorine (Lindane) + organophosphorus (phosphamide) mixture on hepatic carbohydrate metabolism. The results showed that daily administration of the mixture (3.2 mg/kg hexachlorocyclohexane (Lindane) + 3.8 mg/kg phosphamide) for 3 months led to depression of hepatic concentrations of ATP, glycogen and hexokinase activity, while the activities of phosphorylase and glucose-6-phosphatase showed an increase. Serum determinations showed an increase in the concentration of lactate and in the activity



of glucose-6-phosphatase. Thus, chronic poisoning with a mixture of Lindane and phosphamide leads to significant changes in hepatic energy metabolism which, presumably, is predicated not only on changes in the rate of glycolysis but also is determined by alterations in the Krebs cycle.

USSR

UDC 616.981.49-022.38-07:616.341-008.6

EFFECTS OF SALMONELLOSIS ON ABSORPTION IN THE SMALL INTESTINE

Moscow KLINICHESKAYA MEDITSINA in Russian No 11, 1977 pp 101-104 manuscript received 17 Dec 76

YUSHCHUK, N. D., Department of Infectious Diseases, Moscow Medical Stomatological Institute

[Abstract] Studies were conducted on the effects of salmonellosis on absorption in the small intestine of 408 patients, 17-52 years of age, in 48.2% of whom diagnosis was substantiated bacteriologically and in the remaining cases diagnosis was based on serologic findings. Determination of urinary concentration of d-xylose over a 5 hr period after the administration of 5 gm of d-xylose to subjects fasted for 12 hr showed decreased urinary elimination of d-xylose in 65.04% of subjects in the acute phase of the infection, and elevated elimination in 30.21% of the convalescents vis-a-vis urinary elimination values in healthy controls. In patients with a moderate clinical course absorptive function of the small intestine was most seriously affected during the 1st-2nd day of the disease, whereas in patients with a mild course the most noticeable changes occurred on the 3rd day. Follow-up of 62 patients revealed that absorptive function failed to normalize in 6 subjects 6 months after salmonellosis. References 24: 17 Russian, 1 Czech, 1 East German, 5 Western.

USSR

UDC 631.821

COMPARISON OF CALCAREOUS MATERIALS BASED ON CHEMICAL REACTIVITY WITH THE SOIL AND ON THE EFFECTIVENESS OF DECREASING ENTRY OF  $^{90}\text{Sr}$  INTO PLANTS

Moscow AGROKHIMIYA in Russian No 2, Feb 78 pp 133-136 manuscript received 7 Feb 77

ALEKSEYEV, YU. V., Leningrad Branch of the TsINAO

[Abstract] Calcareous fertilizer is widely used for liming of acid soils in northwestern RSFSR. Materials studied in this work included Uglovskiy calcareous dust from the Uglovskiy deposits, Uktinsky calcareous dust (Verkhnefrankovsk), calcareous dust (from the Slantsevsk deposits), dust from the Izborsk deposit, dust from the Ruksealsk Marble-Lime Combine, and Likinskiy carrera dolomite (Vladimirskaya Oblast). (The latter is used for liming in the Komi ASSR). Also used was cement from the Slantsevsk cement factory and the Pribaltinskiy GRES. Chemical reaction with the soil was assayed by the Kats-Katsas method (Abrokhimiya No 3, 1966). The effect of the various limes on prevention of penetration of  $^{90}\text{Sr}$  is tabulated. Liming material with lower chemical activity with the soil than analytical grade chalk has low capacity for prevention of penetration of the strontium into plants. The test plant was vetch seeds. References 5: 3 Russian, 2 Western.

USSR

UDC 631.82:63.1445.4:(571.15)

EFFICACY OF MINERAL FERTILIZERS ON ERODED CHERNOZEMS OF THE ALTAY KRAY

Moscow AGROKHIMIYA in Russian No 2, Feb 78 pp 101-104 manuscript received 10 Feb 77

ZHEZHER, L. V. and SUVOROV, V. P., Altay Scientific Research Institute of Agriculture and Selection, Barnaul

[Abstract] Little data are available on use of fertilizers on eroded soils in the Altay Kray. The title study was carried out on eroded and non-eroded soils (southeastern exposure) in 1972-1974 with N 30, 60 and 90 and P 30, 60, 90 and combinations of these. The fertilizers were more effective on eroded soils as opposed to the non-eroded. In yields with good moisture increase of N from 30 to 90 had an inverse effect on yield of spring wheat; increase of P from 30 to 60 improved the yield. The combination N60P30 was most effective of the various fertilizers used, when the soil was of average erosion. The N and P were most effective in one application. References: 8 Russian.

USSR

UDC 631.82:633.16

INFLUENCE OF INCREASING DOSES OF MINERAL FERTILIZERS ON YIELD AND QUALITY OF BARLEY IN YEARS WITH INCREASED MOISTURE IN PEAT-PODZOLIC SOIL

Moscow AGROKHIMIYA in Russian No 2, Feb 78 pp 73-79 manuscript received 24 Feb 77

IVANOVA, T. I. and BABANINA, A. V., All-Union Scientific Research Institute of Fertilizers and Soil Science

[Abstract] These studies were carried out in 1972-1974, years of increased moisture at the Novoselskiy experimental farm of the authors' institute, in Kaluga Oblast. Method of fertilization has been described earlier (Agrokhimaya No 7, 1976). The soil was peat-podzolic loamy, initial description being pH 4.6, hydrolytic acidity 3.5 meq/100 g soil, humus 2.19%,  $P_2O_5$  10 mg,  $K_2O$  12 mg/100 g. Previous crop was winter wheat on green fodder. On this type of soil, in the years of increased moisture, the test plant, Moskovskiy 121 barley, responded poorly to high doses of mineral fertilizers. The poor yield of the barley without fertilization was attributed to small and undersized grains due to increased moisture in July. When the dose of N fertilizer was increased from 0 to 225 kg/hectare, the weight of 1000 grains decreased, there was a steady drop in weight and uniformity of the grains. On the other hand, grain content steadily increased. The influence of P and K fertilizers varied by year, but was less than the affect of N: in the dry year 1972 no reliable effect on yield was seen, while in the wetter 1973 and 1974 these fertilizers increased barley yield and weight of 1000 grains. References: 10 Russian.

USSR

UDC 631.82:633.11(470.43)

FERTILIZERS UNDER SPRING WHEAT IN THE STEPPE AREAS OF THE CENTRAL TRANSVOLGA REGION

Moscow AGROKHIMIYA in Russian No 2, Feb 78 pp 69-71 manuscript received 9 Feb 77

MOSOLOV, I. V. and PROSHKIN, V. A., Kuybyshev Scientific Research Institute of Agriculture, Bezenchuk

[Abstract] Study was made of the response of spring wheat, grown after corn, to nitrogen, phosphorus and potassium fertilizers. Work was done on an experimental field of the Kuybyshev Scientific Research Institute of Agriculture, whose soil is chernozem; humus content of the 0-40 cm averages

3.7%; total N 0.30%, readily hydrolyzable N 6.9 mg/100 g soil, total P 0.13%, labile P 12.7 mg/100 g soil, total K 1.5%, metabolic K 21.5 mg/100 g soil, pH 6.1. The spring wheat, grown on the normal, terrace chernozem of Kuybyshev Oblast requires P and N fertilizers. The effect of mineral fertilizers on yield is a function of the supply of labile nitrogen, phosphorus and potassium in the vegetation period. In the presence of small amounts of nitrates in the soil and with high-addition of phosphorus, best results are obtained with a complete mineral fertilizer with more N than P or K. The optimal dose is N 50, P 40 and K 40 kg/hectare. References: 17 Russian.

USSR

UDC 631.816:631.587:633.11"324"

EFFECT OF HIGH DOSES OF FERTILIZERS UNDER IRRIGATION CONDITIONS ON BIOCHEMICAL COMPOSITION, YIELD AND TECHNOLOGICAL QUALITIES OF THE GRAIN OF WINTER WHEAT

Moscow AGROKHIMIYA in Russian No 2, Feb 78 pp 63-68 manuscript received 16 Feb 77

SOBKO, A. A., NETIS, I. T. and ZHUKOVA, L. F., Ukrainian Scientific Research Institute of Irrigation Agriculture, Kherson

[Abstract] This study was made on dark chestnut, weakly alkaline, average loam soils of the Ukrainian institute's irrigated fields in 1973-75. Humus content of the soil 0-20 cm layer was 2.2%, labile P 30 mg/kg, and exchange K 300 mg/kg. The prior crop was corn. Soil moisture in the 0-70 cm layer was maintained at no lower than 70%. Plants tested were Bezostaya 1 and Kavkaz. When the N fertilizer dose was raised from 0 to 150 kg/hectare, yield increased, nitrogenous substances in the grain increased, and carbohydrate content decreased. Higher levels of N were essentially ineffective. The optimum fertilizer ratio for high yield and quality of the Bezostaya 1 and Kavkaz was N150P90. Bezostaya 1 variety had better properties and bread-making qualities than Kavkaz but its yield was lower. References: 6 Russian.

USSR

UDC 631.82:633.11"324":631.562.32:631.587

RESPONSE OF NEW SHORT-STEM VARIETIES OF WINTER WHEAT TO FERTILIZERS UNDER IRRIGATION CONDITIONS

Moscow AGROKHIIMIYA in Russian No 2, Feb 78 pp 55-62 manuscript received 15 Mar 77

VERTIY, S. A. and POSTOVOY, G. S., Krasnodar Scientific Research Institute of Agriculture

[Abstract] Short-stem varieties Rannyaya 47 and Polukarlikovaya 49 were developed at the Krasnodar institute to preclude lodging losses of yield by certain winter wheats (e.g., Bezostaya 1 and Mironovskaya 808) under intensive cultivation in the northern Caucasus. These varieties were further studied for response to nitrogen fertilization under optimal watering. Work was done in 1974-76 on the teaching farm "Krasnodarskoye" of the Kuban Agricultural Institute (central area of Krasnodar Kray). Excellent response is reported to the experimental conditions, particularly to N180P80K60. Polukarlikovaya 49 yielded the better quality grain. References: 6 Russian.

USSR

UDC 581.84:581.4:633.11:58.01/.3

ANATOMICAL AND MORPHOLOGICAL CHARACTERISTICS OF WHEAT PLANTS UNDER HIGH INTENSITIES OF PHOTOSYNTHETICALLY ACTIVE RADIATION (PAR) IN LIGHT CULTURE

Leningrad BOTANICHESKIY ZHURNAL in Russian Vol 63, No 2, Feb 78 pp 263-269 manuscript received 2 Dec 76

POLONSKIY, V. I. and LISOVSKIY, G. M., Institute of Physics, Siberian Department, Academy of Sciences USSR, Krasnoyarsk

[Abstract] Soft spring, short-stem wheat, sort 232 was used in this study; it is a hybrid of Skala and Sonora-64 sorts, isolated by Lisovskiy for light culture conditions using hydroponics. The wheat was exposed to uninterrupted illumination with a 6 kw xenon, water-cooled lamp (DKSTV-6000). Intensities of light were 700, 900, 1200 and 1600 w/m<sup>2</sup> PAR; air temperature was maintained at 20-21°. The anatomical-morphological features of the wheat subjected to the various intensities are tabulated--under the high intensity of substantial reorganization of the anatomical structure occurs, two-fold in nature, a protective adaptive reaction to the high-intensity light, and, changes which facilitate increased plant productivity. Plants subjected to the PAR display greater photosynthetic productivity, by a factor of 2-3, than the controls. Cross sections of the wheat leaves and

of the wheat stalks, for both control and experimental plants, are illustrated. Potentially greater yields can be expected when the experimental conditions are employed. Figures 2; references 14: 11 Russian, 3 Western.

USSR

UDC 632.937.1.01

#### ROLE OF CERTAIN ECOLOGICAL FACTORS IN COMBATTING CABBAGE PESTS

Kiev VESTNIK ZOOLOGII (Zoological Record) in Russian No 1, 1978 pp 84-87  
manuscript received 22 Apr 77

YASTREBOV, I. O., Institute of Botany, Academy of Science, Ukrainian SSR

[Abstract] In Kiev Oblast cabbage is often severely infested (up to 70%) by cabbage cutworm (*BARATHRA BRASSICAE*) and cabbage butterfly (*PIERIS BRASSICAE*). The most important parasite affecting the population of the latter pest is *APANTELES GLOMERATUS*. There are two generations of the butterfly, starting in mid-April and ending in late October. If conditions are favorable (such as in 1975), there may be three. The maximum infestation of the butterfly is in mid-May, mid-June and mid-September, while the peak population of the cutworm is in early August. The first generation of the butterfly is most heavily infested by *APANTELES* (up to 87%), because the parasite appears earlier. In later generations as the butterfly population grows larger than that of the parasite, the rate of infestation declines. The same pattern occurs for the cutworm and its parasite (*ERNESTIA CONSOBRINA*). These patterns are not always taken into consideration in pest control operations. The fields are sprayed when the pest population is low and spraying is not concentrated around the edges of fields. A 0.5% concentration of DENDROBAZYLENE was applied. After 6 days 78% of the cutworms and 94% of the butterflies have perished. Figures 2; references: 4 Russian.

USSR

UDC 613.6+621.3.038:576.75-06

PHYSIOLOGIC EFFECTS OF TESTING TELEVISION PICTURE TUBES (LITERATURE SURVEY)

Kiev VRACHEBNOYE DELO in Russian No 2, 1978 pp 128-132

DATSENKO, I. I. and FEDORIV, YA. N., Department of General Hygiene,  
L'vov Medical Institute

[Abstract] A survey is presented of Soviet and international literature on the effects on workers of procedures involved in testing television picture tubes. Consideration of the available information indicates that, although much has been done to elucidate the potential physiologic and pathologic effects on viewers, very little has been done to evaluate the danger to which repairmen and others may be exposed. The neglect of this area of public health is due to the assumption that since such exposures are deemed negligible and involve low level radiation they must not present a significant health hazard. However, available studies indicate that this is not the case and further studies are required to elucidate the full nature of the health hazard to which such workers are exposed. References 53: 48 Russian, 1 Czech, 1 Slovak, 1 Polish, 2 Western.

USSR

UDC 616-073.916(47+57)

CURRENT PROBLEMS AND PROSPECTS IN SOVIET RADIOISOTOPE DIAGNOSIS

Moscow KLINICHESKAYA MEDITSINA in Russian No 12, 1977 pp 12-18 manuscript received 17 Jun 77

LINDENBRATEN, L. D. and LYASS, F. M.

[Abstract] A brief survey is presented of the achievements and progress in radioisotope-based diagnosis as practiced in the USSR. Development of radioisotope diagnosis in the USSR can be divided into 3 stages consisting essentially of the first 15 years after WW II (I-131, Na-24, and P-32 labeled compounds), 1960-1970 (I-131, Hg-203, Au-198 and other isotope-labeled reagents), and the seventies which saw an introduction of a greater variety of radioisotopes (Tc-99m, In-113m, Sr-87m, I-132) and developments and improvements in various detectors for clinical and experimental use. Progress made in this field of diagnosis can be better appreciated by considering that currently there are 300 radioisotope laboratories in the USSR which are staffed by 1000 radiologists, 350 physicists, and 2000 technicians. In 1975 over half a million patients benefitted from various radioisotope diagnostic procedures, and the Ministry of Health USSR has currently approved 30 Soviet radiopharmaceuticals for clinical use.



USSR

UDC 615.849.1.015.2:615.835.3].015.44:616-006-018.15

TUMOR REOXYGENATION AND RADIOTHERAPY

Moscow MEDITSINSKAYA RADIOLOGIYA in Russian No 1, 1978 pp 28-29

RAMPAN, YU. I., Oncologic Research Center, Academy of Medical Sciences  
USSR, Moscow

[Abstract] A brief review is presented of the factors determining susceptibility of anoxic or hypoxic cells to the effect of radiation therapy, and the manner in which knowledge of cellular reoxygenation may be employed in increasing the susceptibility of neoplastic cells to radiotherapy. Preliminary experimental studies relying on polarographic determinations of cellular/tissue  $pO_2$  indicate that fractional doses of radiotherapy below 1000 rad promote reoxygenation and, thereby, increase susceptibility of the target cells to further irradiation. Such findings point to the need for further studies to evaluate the effectiveness of the polarographic method in accurately reflecting the degree of reoxygenation in clinical situations, and of using such findings to determine the appropriate time and doses of further radiotherapy.

USSR

UDC 616.155.34-018.13:575.224.23]-057-02:621.384.6

FREQUENCY OF CHROMOSOMAL ABERRATIONS AMONG INDIVIDUALS EXPOSED TO LOW DOSE IRRADIATION WHILE WORKING WITH PARTICLE ACCELERATORS

Moscow MEDITSINSKAYA RADIOLOGIYA in Russian No 12, 1977 pp 45-48 manuscript received 10 Jan 77

GORIZONTOVA, M. N. and SOKOLOV, V. V., Clinic of the Scientific Research Institute of Labor Hygiene and Occupational Diseases, Academy of Medical Sciences USSR

[Abstract] Cytogenetic studies were conducted on 20 males and 5 females, 30-45 years of age, working with the accelerator at the Joint Institute of Nuclear Studies (Group I), and 46 males, 25-46 years old, operating the 70 GeV accelerator at the Institute of High Energy Physics (Group II). Group I subjects were exposed to neutrons and high energy gamma radiation with average exposures of  $1.1 \pm 0.16$  rem/yr (average total of  $12 \pm 2.8$  rem over 11-12 years), while Group II workers were subjected to a multi-component radiation including mu mesons, adrones, etc., for average yearly exposures of  $1.13 \pm 0.12$  rem ( $7.4 \pm 0.74$  rem over 4-8 years). Evaluation of the results demonstrated that these workers, receiving less than 1/3rd of the maximum permissible exposure, did not differ from normal controls in

terms of the incidence and nature of chromosomal aberrations. However, the percentages of hypodiploid (44 and 45 chromomoses) and hyperdiploid (47 chromosomes) cells were increased, and the presence of mitoses with a tetraploid chromosomal complement was noted in Group II workers.

References: 9 Russian.

USSR

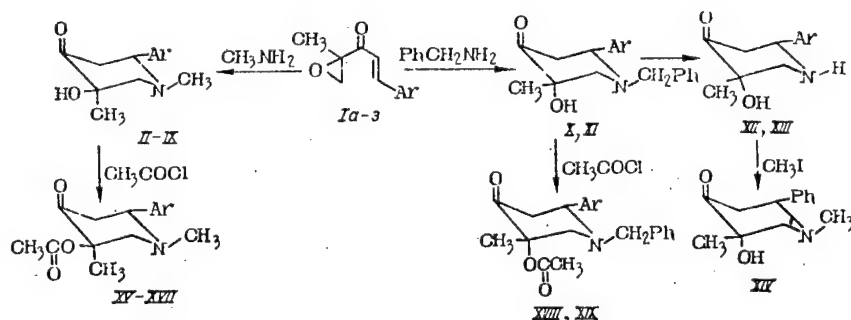
UDC 615.849.1.015.25+615.23):547.823

# SYNTHESIS, RADIOPROTECTIVE AND ANTIHYPOXIC PROPERTIES OF 3-HYDROXYPIPERIDONE-4 DERIVATIVES

Moscow KHMICO-FARMATSEVTICHESKIY ZHURNAL in Russian Vol 12, No 2, Feb 78  
pp 79-81 manuscript received 22 Mar 77

IL'YUCHENOK, T. YU., ROMANCHAK, M. N., TISHCHENKO, I. G., STANISHEVSKIY, L. S., FRIGIDOVA, L. M., ZAV'YALOV, YU. V., SHADURSKIY, K. S., ZAKHAREVSKIY, A. S. and MIKLEVICH, A. V., Scientific Research Institute of Medical Radiology, Obninsk; Belorussian University imeni V. I. Lenin; Belorussian Institute for the Advanced Training of Physicians, Minsk

[Abstract] Stereoisomeric (at the C, 3 atom), 6-aryl substituted 3-hydroxypiperidones-4 and 3a-hydroxypiperidones-4 were synthesized according to the following condensation scheme:



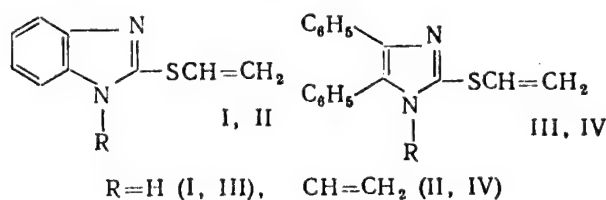
The products, II to XIV and hydrochlorides of 3-hydroxypiperidones-4 acetates, XV to XIX, are tabulated, listing the substituted aryl group and physical and chemical properties. The radioprotective, antihypoxic and toxic properties of II to XIV were studied on mice, by oral or intra-abdominal administration. Antihypoxic properties were tested in a SBK-48M barochamber at a simulated altitude of 10,000 m. Compounds XV to XIX were also tested for effects on animal physiology (e.g., body temperature, neuromuscular reactions). A broad spectrum of effects is indicated. Figure 1; references: 3 Russian.

## SYNTHESIS AND RADIOPROTECTIVE PROPERTIES OF IMIDAZOLTHIONE DERIVATIVES

Moscow KHIMIKO-FARMATSEVTICHESKIY ZHURNAL in Russian Vol 12, No 2, Feb 78  
pp 82-85 manuscript received 28 Jul 77

SKVORTSOVA, G. G., IL'YUCHENOK, ABRAMOVA, N. D., FRIGIDOVA, L. M.,  
SHADURSKIY, K. S., TETERINA, L. F. and TRZHTSINSKAYA, B. V., Irkutsk  
Institute of Organic Chemistry of the Siberian Department, Academy of  
Sciences USSR; Scientific Research Institute of Medical Radiology, Academy  
of Medical Sciences USSR, Obninsk

[Abstract] The capacity of some substituted imidazoles to protect animals from the effects of ionizing radiation prompted this search for imidazolthione derivatives with similar protective action. Such compounds have two potential protective sites, viz., the imidazol portion and the thiourea portion. Earlier syntheses have yielded mono- and divinyl derivatives of benzimidazol-2-thione and 4,5-diphenylimidazol-2-thiones (I-IV):



Corresponding hydrochlorides V to VIII have also been produced. Compounds I and II react with methyl iodide to form water-soluble iodomethylates X and XI. Study of the relationship of a radioprotective effect and character and position of a substitution on the imidazol ring suggested synthesis of S-(beta-ethylthio)ethyl-2-mercaptobenzimidazol, (compound XII), N-(beta-ethylthio)ethylbenzimidazol-2-thione, (XIII), N,S-(beta-diethylthio)diethyl-2-mercaptobenzimidazol, (XIV), and N,N-dicyanoethylbenzimidazol-2-thione, (XV). Several other, related derivatives, were also produced. Toxicities and radioprotective properties of the various derivatives are tabulated. Promising radioprotective properties are displayed by 2-benzimidazolyl-vinylsulfide-HCL (V) and N,S-divinyl-4,5 diphenyl-2-mercaptoimidazol. References: 9 Russian.

USSR

UDC 616.34-007.253.616-08

EXPERIENCE IN TREATMENT OF ENTEROCUTANEOUS FISTULAS

Ashkhabad ZDRAVOOKHRANENIYE TURKMENISTANA in Russian No 2, Aug 77 pp 34-38

KHALIKOV, D. YA., Department of Surgery, Faculty for the Advanced Training of Physicians, Turkmen State Medical Institute

[Abstract] This report was presented at the Meeting of the Republic (TSSR) Society of Surgeons, 27 Jan 77. It involves 29 patients aged 16-66 with fistulas of the large and small intestine seen in the period 1953 to 1977. The fistulas were attributed to untimely appendectomies (18), Caesarian section (3) and various other reasons (e.g., criminal abortions, bullet wound, gastrectomy). The author does not advocate conservative therapy. Indications for operative intervention, preliminary measures, technique of operation (carried out in two stages) and post-operative handling are described. Only one death resulted in 24 operations and this was in a 66-year old female patient with total colonic and biliary fistulas, death being attributed to peritonitis after the first stage of the operation. References 17: 16 Russian, 1 Western (C. A. Potter, JAMA, 1929).

USSR UDC 616.988.75-06:616.24-002-085.281-036.8-07:616.155.3-008.931-074

DETERMINATION OF ACTIVITY OF INTRACELLULAR ENZYMES OF LEUKOCYTES FOR ASSESSMENT OF THE EFFECTIVENESS OF ANTIBACTERIAL THERAPY OF INFLUENZA-ASSOCIATED PNEUMONIA

Moscow LABORATORNOYE DELO in Russian No 1, 1978 pp 7-9 manuscript received 29 Nov 76

TUYNOV, V. A. and FROLOV, V. K., Department of Infectious Diseases, Donetsk Medical Institute

[Abstract] A laboratory procedure is suggested for assessment of the efficacy of antibacterial therapy of pneumonia associated with influenza. It consists in assay of alkaline phosphatase (AlP) and acid phosphatase (AcP) enzymes in neutrophils of peripheral blood. The study was done on 168 pneumonia-complicated influenza patients during an epidemic of A/Port Chalmers flu in 1975 and A/Victoria flu in 1976. The activity of AlP and AcP rises at the crisis of the flu-pneumonia, higher than that in flu alone. Effective antibacterial therapy which produces an improvement in flu-pneumonia patients also produces a fall in the activity of both enzymes. When no clinical improvement occurs, enzyme activity is seen to remain high. Absence of decrease in enzyme activity suggests need to change antibiotics used in the antibacterial therapy; resort to this substitution is reported

to have achieved improvement in patients' condition and drop in enzyme activity. The enzyme level can thus be an index of antibacterial effectiveness. References 12: 10 Russian, 2 Western.

USSR

UDC 616.24-002.5+615.451.35+615.835.5

#### AEROSOL CHEMOTHERAPY OF PULMONARY TUBERCULOSIS

Kiev VRACHEBNOYE DELO in Russian No 2, 1978 pp 20-23

MAGALETSKIY, I. F., Department of Tuberculosis, Voroshilovgrad Medical Institute

[Abstract] Clinical studies were performed to evaluate the effectiveness of aerosol administration of antitubercular agents in the case of 107 patients (63.6% males, 36.4% females, 20-70 years old). A clinically similar group of 80 patients was treated conventionally. After preliminary treatment to clear the airways the experimental patients were subjected to 15-20 min sessions of aerosolization for 2-4 months with one session/day. Streptomycin was administered to 39 patients (250-500 U/session), isoniazid was given to 41 patients (4-5 ml of 6% solution), solyutizon [sic] was administered to 27 patients (5 ml of 2% solution), and 16 of the patients received isoniazid or solyutizon as an electroaerosol. Clinical evaluations demonstrated that symptoms of toxicity disappeared in 100% of the experimental patients after 5 months, and in 92.1% of the control subjects after the same period of time ( $P < 0.01$ ). Conversion to negative sputum was achieved in 97.5% of the aerosol group and in 84.1% of the control group ( $P < 0.01$ ). In the case of the latter parameter solyutizon was found more effective than isoniazid, and the latter more effective than streptomycin. Comparison of the two aerosol groups showed that electroaerosol administration was more effective than conventional aerosol in that X-ray evidence of resolution was obtained with 87.5% of the electroaerosol patients after 6 months, and with only 63.7% of the patients on conventional aerosol ( $P < 0.05$ ). References: 8 Russian.

USSR

UDC 616.831.9-002+616.981.232-085.334

THERAPY OF PENICILLIN-RESISTANT MENINGOCOCCAL MENINGITIS

Kiev VRACHEBNOYE DELO in Russian No 2, 1978 pp 138-141

SUKHOMOVSKIY, B. S. and NAUMENKO, A. YA., Irkutsk

[Abstract] Clinical experience is described in treating 28 male patients between the ages of 18 and 21 years with meningococcal meningitis from whom penicillin resistant meningococci were isolated. In addition to conventional supportive therapy, 400,000 U/Kg/day of penicillin intramuscularly was found effective in 15 of the patients. Seven patients responded to treatment with levomycetin succinate (60 mg/Kg, IM), and 6 to ampicillin (200 mg/Kg, IM) within a day. Full clinical recovery and normalization of laboratory findings was seen in 15-22 days. The case of one patient is provided. References: 11 Russian.

USSR

UDC 616.988.75-036.17

THERAPY OF SEVERE CASES OF INFLUENZA

Moscow TERAPEVTICHESKIY ARKHIV in Russian No 2, 1978 pp 123-126 manuscript received 6 Sep 77

KETILADZE, YE.S., KNYAZEVA, L. D., KRYLOV, V. F., LITVIN, L. L., MART'YANOVA, E. M. and CHEKAL', L. V., Clinical Department, Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, and the First Municipal Clinical Infectious Diseases Hospital, Moscow

[Abstract] Clinical data are provided on the course and treatment of certain severe cases of influenza A2 and B encountered during the epidemics of 1972/1973, 1975, 1976, and 1977. The 116 cases under consideration involved 104 with various complications (87 pneumonia, 12 bronchitis, and 5 with meningo-encephalitis, agranulocytosis, or iatrogenic complications). Over 60% of the subjects were older than 50 years in the case of influenza A2 (83 patients), while 73% of the 33 patients with influenza B were above 50 years of age. Generally speaking, the therapy was supportive and symptomatic and included courses of anti-influenza gamma globulin administration as well as antibiotics for bacterial complications. In addition, use was made of an intravenous "cocktail" consisting of the following: 1 ml 0.05% strophanthin or 0.06% corglycone, 5-10 ml 2.4% ephyllin, 100 mg cocarboxylase, 10 ml panangin [sic], 40-80 ml laziks [sic], 30-90 mg prednisolone, and at times 2 ml nikethamide or 5-10% glucose 1-2 times per day. Most bacterial complications were ascribed to staphylococcus aureus. Ten of the influenza B

patients and 16 of the influenza A2 patients succumbed; these were generally late admissions with respiratory and cardiovascular insufficiencies, pulmonary edema, or cerebral edema. References: 8 Russian.

USSR

UDC 616.12-073.97:681.31

CONTINUOUS COMPUTER ANALYSIS OF EKG WITH DIRECT PATIENT HOOK-UP. II.  
COMPUTER DIAGNOSIS OF ARRHYTHMIA

Moscow KARDIOLOGIYA in Russian No 11, 1977 pp 66-73

KHALFEN, E. SH., RYBAK, O. K. and NAZAROV, S. I., Department of Internal Medicine Propedeutics, Saratov Medical Institute

[Abstract] Several years of experience are reviewed in an evaluation of computer-based diagnosis of arrhythmias, which is of particular importance in the prognosis and outcome of myocardial infarction. The on-line diagnosis rests essentially on evaluation of the R-R interval length, in particular on the criterion of arrhythmic contraction ( $AC_{R-R}$ ) which determines acceptable differences between the lengths of two successive cardiac contractions, i.e.,  $R-R_i > R-R_{i+1}$  or  $R-R_i < R-R_{i+1}$ . Using the established computer logic showed a 95.6% agreement between clinician and machine established diagnoses for sinus tachycardia, sinus bradycardia, paroxysmal tachycardia, sinus arrhythmia in 170 patients, 97 of whom had sustained an infarct. Figures 2; references 20: 12 Russian, 8 Western.

USSR

UDC 616-006-085.849.1-059:615.835.3:546.17

FIRST ATTEMPT AT USING HYPOXIC HYPOXIA IN CLINICAL RADIOTHERAPY

Moscow MEDITSINSKAYA RADIOLOGIYA in Russian No 12, 1977 pp 10-13 manuscript received 13 Jan 77

SARKISYAN, YU. KH., KIR'YANOV, I. YU. and KARIBOV, YU. I., Moscow Roentgenoradiological Scientific Research Institute, Ministry of Health RSFSR

[Abstract] A description is provided of the first attempt at using hypoxic hypoxia in combination with Co-60 therapy of 12 oncologic male patients, 45-75 years of age (2 with laryngeal cancer, 1 with cancer of the oropharynx, and 9 with pulmonary cancer). The approach consisted of exposing the patients to a 10% O<sub>2</sub>/90% N<sub>2</sub> mixture (GGS-10; equivalent to 5800 meter altitude) for up to 30 min during the course of fractional dose radiotherapy, with 5 daily

treatments/week for a total of 5-34 sessions over 5-47 days. Total radiation ranged from 2800 to 7090 rad depending on tumor site. Evaluation of the clinical results did not reveal any pronounced side effects nor effectiveness of this therapeutic approach. However, GGS-10 administration did apparently minimize radiation-induced dermatitis in the laryngeal and oropharyngeal cases. Figures 2; references: 2 Russian.

USSR UDC 617-001.36-02:617-001.17-092.9-085.355:577.152.311]-07:  
[616-008.92+616.12-008.1]-07

EFFECTS OF CHOLINESTERASE ON HEMODYNAMICS AND WATER-ELECTROLYTE BALANCE  
IN EXPERIMENTAL BURN-INDUCED SHOCK

Moscow PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA  
in Russian No 6, 1977 pp 47-54 manuscript received 27 Jul 76

KOCHETYGOV, N. I., DEMBO, M. A., SELIVANOV, YE. A. and VYAZ'MENSKAYA, M.M.,  
Experimental Pathology Laboratory and the Laboratory of Blood Derivatives  
and Blood Substitutes, Leningrad Scientific Research Institute of Hema-  
tology and Blood Transfusion

[Abstract] Since various forms of shock are accompanied by marked elevation of blood levels of acetylcholine (ACh) and depression of blood cholinesterase (ChE) activity, studies were conducted on the therapeutic effectiveness of intravenous drip infusions of an exogenous preparation of propionyl ChE (PChE) (20 U/kg) in conjunction with a plasma expander (polidez [sic]; 20 ml/Kg) in 2.5-3 Kg rabbits subjected to hot water burns over 12-15% of body surface. Evaluation of the hemodynamic state, water-electrolyte balance, acid-base equilibrium, plasma and erythrocyte ChE determinations pointed to the effectiveness of PChE in maintaining the cardiac output and minute volume, and prevention of undue hyperkalemia, uncontrolled increase in plasma osmolarity, and metabolic acidosis. Furthermore, PChE promoted a gradual decrease in plasma ACh over the 4 hr period of observation. The data appear promising and suggest the need for further investigations along these lines. Figures 2; references 32:  
23 Russian, 9 Western.



USSR

UDC 615.837.3+615.835.5:616.24-002.5

ULTRASONICALLY-PREPARED AEROSOLS OF ANTIBACTERIAL AGENTS IN THE THERAPY OF PULMONARY TUBERCULOSIS

Kiev VRACHEBNOYE DELO in Russian No 12, 1977 pp 93-95

DRUZHININA, A. YA. and SEMENOVA, YE. V., Tuberculosis Department, Khabarovsk Medical Institute

[Abstract] In consideration of the therapeutic complications resulting from rapid isoniazid inactivators among the patient population with tuberculosis, an attempt was made to evaluate the efficacy of an ultrasonically prepared aerosol containing isoniazid in the treatment of such cases of pulmonary tuberculosis. The studies were conducted on 32 male and 19 female patients, 18-60 years of age, of whom 27 were treated with the aerosol (0.6 dose [sic], 14 patients in combination with 1.0 dose [sic] of streptomycin; PAS was administered perorally), while 24 were treated conventionably (controls). Blood determinations of isoniazid after single 20 min exposure to the aerosol showed concentrations of 1.6-6.4  $\mu\text{g/ml}$  after 3 hr and 0.4-0.8  $\mu\text{g/ml}$  after 24 hr. Patients treated with isoniazid per os showed levels of 6.7  $\mu\text{g/ml}$  after 3 hr; after 12 hr isoniazid was not detectable. In general, the results demonstrated that patients treated with the aerosol regimen (20 min/day, 5 days/week) showed abatement of toxicity in 2-3 weeks vs. 1-2 months in patients on conventional regimens. In addition, other objective and subjective improvements were noted in the aerosol group within a month, while similar improvements were not evident until 3-4 months elapsed in the control group. Thus, administration of isoniazid as an aerosol appears to be a promising therapeutic approach in the management of rapid inactivators. Mild irritation of the respiratory mucosa in 3 patients was controlled with cessation of aerosol therapy and routine management. References: 8 Russian.

USSR

UDC 616.9-022.38-06:616.13/.14-008.1-036.11

TOXIC INTESTINAL INFECTIONS AND VASCULAR CHANGES

Moscow KLINICHESKAYA MEDITSINA in Russian No 11, 1977 pp 105-109  
manuscript received 4 May 76

REBENOK, ZH. A. and POLONETSKIY, L. Z., Department of Infectious Diseases, Belorussian Institute for the Advanced Training of Physicians and the Minsk Hospital of Infectious Diseases

[Abstract] Blood pressure determinations and rheographic investigations were undertaken on 106 patients (20-45 years) without previous evidence of

cardiovascular disease to determine the effects of intestinal infections (salmonella, cocci, proteus) on the cardiovascular system. Data obtained for 56 (20-45 years) clinically healthy individuals provided control parameters. Rheographic findings indicated a decrease in vascular tone during intestinal infections. Hypotension in subjects with light forms of the disease was characterized by values of 90/60 mm Hg, 90/55 mmHg in subjects with a moderate course, and 50/15 mm Hg in patients with a severe course of intestinal infection. Hypertension was noted in 22 cases throughout the course of the illness. In 16 cases hypertension was noted only during the height of the infectious process. In no case of hypertension did blood pressure exceed 140/90-150/80 mm Hg. The data indicate that rheographic studies should be performed on patients with intestinal infections to determine the state of vascular tone prior to institution of vasoactive agents, rather than placing sole reliance on blood pressure determinations. Tables 3; references 18: 15 Russian, 1 Polish, 1 Czech, 1 Western.

USSR UDC 616-008.922.1.04-02:616.1]-085.272.6:547.466.64]-059:615.356:  
577.164.2

#### GLUTAMIC AND ASPARTIC ACIDS IN THE TREATMENT OF CIRCULATORY HYPOXIA

Moscow PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA in Russian  
No 1, 1978 pp 20-25 manuscript received 4 Feb 76

BASKOVICH, G. A., BONDINA, V. A., KOCHETYGOV, N. I. and CHAPLYGINA, Z. A.,  
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Scientific Research Institute of Hematology and Blood Transfusion

[Abstract] Evaluations were made of several therapeutic approaches designed to overcome severe blood loss in 2.5-3.0 kg rabbits yielding a fall in arterial blood pressure (BP) to 19-22 mmHg. Clinical chemistries showed that, among other findings, severe hemorrhage led to a 2.5-3 fold increase in blood lactic acid, depression of  $pCO_2$ , decreased pH, hyperkalemia, elevated  $NH_3$  levels, and depression of ATP levels. Infusion of polidez [sic] alone (polyvinyl alcohol solution, ca. 10,000 MW) led to an immediate elevation of BP to 75 mmHg but did not profoundly influence other parameters of interest; the survival rate with polidez treatment was ca. 50-55%. Infusion of polidez supplemented with 120 mg% sodium glutamate resulted in more pronounced hemodynamic and metabolic improvements which yielded a survival rate of 70%. Treatment with polidez in combination with potassium aspartate resulted in immediate death of the animals, while with polidez combination with sodium aspartate, death occurred in 1-6 hr from progressive metabolic acidosis. It appears that combined treatment with sodium glutamate involves transamination to oxalacetic acid with activation of oxidative processes, direct uptake of  $NH_3$  via the glutamine-glutamate mechanism, and potentiation of eventual uptake

of  $\text{NH}_3$  by alpha-ketoglutarate following transaminations involving pyruvate and oxalacetic acid. Figures 1; references 21: 13 Russian, 8 Western.

USSR

UDC 617.54/55-001.4

PEACETIME THORACOABDOMINAL WOUNDS

Kiev KLINICHESKAYA KHIRURGIYA in Russian No 8, 1977 pp 40-43

NURMUKHAMEDOV, R. M., professor and NURMETOV, N., General Surgery Clinic, Therapeutic Faculty, Tashkent Order of the Red Banner of Labor Medical Institute

[Abstract] Records in Tashkent and in the rest of Uzbekistan were reviewed in order to determine the nature of peacetime thoracoabdominal wounds and injuries. The various medical and forensic establishments revealed a total of 239 cases involving 222 men and 17 women; penetrating and lacerating wounds accounted for 94.1% (225) of the cases and shotgun wounds for 5.9% (14). Most of the wounds were in the region of the 5th to 6th rib; 66.5% (159) of the cases involved left-sided injuries, 28.0% (67) right-sided injuries, and 5.4% (13) were bilateral. Of the 232 surgical interventions, 24 consisted of thoracotomy and debridement, 33 involved laparotomy and debridement, 30 laparotomy, 46 thoracotomy, 75 thoracotomy and laparotomy, 17 laparotomy and thoracotomy, and 7 thoracolaparotomy. Lung injuries were sustained by 57 patients, hepatic injuries by 59, splenic damage was seen in 40 cases, stomach injuries in 38, and visceral eversion through the abdominal wall affected 52 patients. Causes leading to the death of 51 (21.3%) patients were as follows: shock (14), hemorrhage (14), shock and hemorrhage (5 nonsurgical cases), and post-operative complications (18). References: 7 Russian.

USSR

UDC 616.9-022.38-085.33(049.3)

SHOULD ANTIBACTERIAL THERAPY BE EMPLOYED IN TOXIC ENTERIC INFECTIONS?

Moscow KLINICHESKAYA MEDITSINA in Russian No 11, 1977 pp 132-134 manuscript received 15 Oct 76

TUMANOV, F. A. and YUSHCHUK, N. D., Department of Infectious Diseases, Moscow Stomatological Institute imeni N. I. Semashko

[Abstract] Studies were conducted to determine the effectiveness and consequences of antibacterial therapy in the case of 1785 patients with toxic

enteric infections of undetermined etiology and 2059 patients with salmonellosis at the 2nd Infectious Diseases Hospital in Moscow during the period 1971-1976. Clinical evaluations showed that salmonellosis had a more protracted course than other forms of enteric infections and, furthermore, that antibiotic treatment of salmonellae markedly prolonged the course of the disease, duration of diarrhea, and delayed disappearance of signs of toxicity. In addition, antibiotic chemotherapy promoted the development of carrier states ( $P < 0.05$ ). Consequently, contrary to the prevailing medical opinion, antibiotic treatment of toxic enteric infections, including localized forms of salmonellosis, not only is ineffective but is also contraindicated because it aggravates and prolongs the course of the underlying disease and favors development of carrier states. References 13: 9 Russian, 4 Western.

USSR

UDC 616.127-005.8-06:616.89-085.851.111-035.1

INDICATIONS FOR AUTOGENIC TRAINING IN HEART INFARCT PATIENTS WITH PSYCHOPATHOLOGY

Moscow TERAPEVTICHESKIY ARKHIV in Russian No 12, 1977 pp 17-20 manuscript received 11 Mar 77

SHKHAVTSABAYA, I. K., ZAYTSEV, V. P. and YURDANOV, V. S., Institute of Cardiology imeni A. L. Myasnikov, All-Union Cardiology Science Center

[Abstract] Studies were conducted on the effectiveness of autogenic training in the case of 103 male patients with myocardial infarction between the ages of 29 and 67 years (16 with repeat infarctions) who also presented with various forms of psychopathology. The results showed that this therapeutic approach was most effective with patients in whom neurasthenia and cardiophobia first developed, postinfarction. This group consisted largely of highly motivated subjects. Poorest results were obtained with patients presenting with a prolonged history of psychopathologic changes, particularly hypochondriacs and individuals tending to hysteria. The findings indicate that this form of psychotherapy is most promising in subjects with neurasthenia and cardiophobia. References 18: 11 Russian, 1 Polish, 6 Western.

USSR

UDC 616.127-005.4-036.65-02:615.221.015.156

AGGRAVATION OF CORONARY INSUFFICIENCY ON SUDDEN WITHDRAWAL OF BETA-ADRENERGIC BLOCKADERS

Moscow TERAPEVTICHESKIY ARKHIV in Russian No 12, 1977 pp 22-26 manuscript received 20 Apr 76

YERMILOV, L. P., KULESHOVA, E. V. and SAFRONNIKOV, L. V., Department of Faculty Therapy, Ist Leningrad Medical Institute imeni I. P. Pavlova

[Abstract] Studies were conducted on 63 patients (29-67 years old) with ischemic heart disease treated with beta-adrenergic blockaders, including 30 for whom therapy was discontinued for various reasons after 3 months to 5 years of treatment. With the exception of 2 patients with typical angina pectoris, discontinuation of beta-adrenergic blockaders led to aggravation of coronary insufficiency and clinical deterioration, including myocardial infarction in some subjects. This study indicates that abrupt discontinuation of chemotherapy involving even relatively low doses of beta-adrenergic blockaders (60-80 mg/day) may have serious cardiovascular consequences and, for that reason, should be done on a gradual basis. The most likely mechanism responsible for such deleterious effects may be increased susceptibility of the myocardium to adrenergic influences and consequent increased demand for oxygen following cessation of chemotherapy. Figures 2; references 6: 1 Russian, 5 Western.

USSR

UDC 616-006-092-08:615.28]-07:616-006-02

CHLORAMPHENICOL MODIFICATION OF THE TOXICITY AND THERAPEUTIC EFFECTIVENESS OF N-NITROSOMETHYLUREA

Leningrad VOPROSY ONKOLOGII in Russian No 12, 1977 pp 66-70

BOGUSH, T. A., KONOPLEVA, I. A. and SHABAD, L. M., Chemical Carcinogenesis Laboratory, Oncology Science Center, Academy of Medical Sciences USSR

[Abstract] In view of the fact that chloramphenicol (CA) has been shown to inhibit tumorigenesis, tests were conducted to establish the effects of CA on the therapeutic effectiveness and toxicity of N-nitrosomethylurea (NMU) in tumor-free CBA mice and in animals with Ehrlich ascitic tumor. The results demonstrated that per os administration of CA (1 mg/gm for 5 days) to 2-3 month old mice modified subsequent subcutaneous injection of an LD<sub>100</sub> NMU dose to LD<sub>50</sub>, i.e., 0.1 mg/gm NMU equalled LD<sub>100</sub> in un-pretreated mice and LD<sub>50</sub> in CA-pretreated mice. Similarly, a normally LD<sub>50</sub> dose of NMU (0.085 mg/gm) failed to result in any mortality after 10 days in CA treated

mice. Several other experiments demonstrated that while CA exerted on direct influence on Ehrlich tumor cells and did not affect the course of mice carrying the transplanted tumor, combination of CA and NMU (0.05-0.075 mg/gm) generally resulted in a longer survival time than seen with NMU treatment alone. ( $P < 0.05$  to  $P < 0.01$ ). Figures 3; references 13: 8 Russian, 5 Western.

USSR

UDC 615.28

ANTINEOPLASTIC EFFECTS OF CERTAIN NEW DERIVATIVES OF 2,4-DIETHYLENE-IMINO-6-AMINO-SYM-TRIAZINE

Leningrad VOPROSY ONKOLOGII in Russian No 12, 1977 pp 70-75

MALYUGINA, L. L., POL'KINA, R. I., KRAYZ, B. O. and AREMIZOV, A. L.,  
Experimental Therapy Laboratory and the Laboratory of Organic Synthesis,  
Order of the Red Banner of Labor Scientific Research Institute of Oncology  
imeni Professor N. N. Petrov, Ministry of Health USSR.

[Abstract] Studies were conducted in rats and mice to determine the tumor-ostatic effectiveness of new water-soluble derivatives of 2,4-diethyle-  
neimino-6-amino-sym-triazine: [triazine]-NHC(CH<sub>2</sub>OH)<sub>2</sub>, where R = CH<sub>2</sub>OH

(I), H (II), CH<sub>2</sub> (III), or CH<sub>2</sub>CH<sub>3</sub> (IV). Evaluation of toxicities showed

that the LD<sub>50</sub> values in mg/kg ranged from 5.0 to 13.3 for mice and 3.5 to 8.0 for rats on intraperitoneal injection. The effectiveness of the individual agents in inhibiting sarcoma-37 growth in mice, in terms of % inhibition, was as follows for I, II, III, and IV: 71.5%, 75.0%, 84.0%, and 67.0%, respectively; the corresponding inhibitions in rats for sarcoma-45 were 60%, 40%, 79% and 100%. In addition, agents I, II, III, and IV prolonged the survival times of mice with Ehrlich's ascitic tumor by 150, 145, 150, and 155 days, respectively. Figures 2; references: 4 Russian.

USSR

UDC 619:616.981.136:636.22/.28

OUTBREAK OF LISTERIOSIS IN CATTLE

Moscow VETERINARIYA in Russian No 3, Mar 78 pp 65-66

ANNAGIYEV, A. A. and FARZALIYEV, Azerbaidzhan Scientific Research Veterinary Institute, and KULIYEV, A. A., Main Veterinary Administration, Ministry of Agriculture AzerSSR

[Abstract] An outbreak of listeriosis occurred in March 1977 on the "Komsomol" kolkhoz of Vartashenskiy Rayon, AzSSR among young horned cattle, primarily as an affection of the nervous system. Of 400 cattle, 30 became ill and 26 died. Characteristic symptoms and autopsy findings are listed. The affected animals were isolated and the others vaccinated with a strain of listeria A, twice, dose 8 ml each (3 + 5). Of 380 animals so treated only 4 were ill. No further losses occurred.

USSR

UDC 619:614.9

MICROCLIMATE OF PREMISES AND POLLUTION OF THE AIR RESERVOIR ON CATTLE AND POULTRY FARMS

Moscow VETERINARIYA in Russian No 3, Mar 78 pp 32-34

ONEGOV, A. P. and ZARIPOV, G. G., Kazan Veterinary Institute

[Abstract] These studies were carried out in six agricultural zones of the central trans-Volga area. Farms included "Smyshlyayevskiy" cattle sovkhov in Kuybyshev Oblast: "Volzhskiy" dairy (Tatar ASSR); "Aktashkiy" pig sovkhov (Tatar ASSR); "Timashevskaya" poultry farm (Kuybyshev O.); "Ikshurminskiy" (Tatar ASSR) pig farm. Air content of CO<sub>2</sub>, ammonia, dust and microorganisms were recorded. Need for ongoing control of sources of pollution is emphasized; installations of systems to provide optimal microclimate should include automatically-controlled ventilation and heating equipment, viz., "Klimat" and "Elektroklimat", and decentralized input-exhaust devices with centralized inputs of air, viz., PVU-4, PVU-6, PVU-2 and the like. In the absence of such devices, ventilators and air heaters should be provided. A test was made, with *B. prodigiosus*, to determine how far into the premises a microorganism form would be spread through the devices used; this was found to be a substantial problem, correctible in part by placement of premises favorable to prevailing winds, separation of individual buildings by green plots, use of clean air, appropriate siting of exhaust fans, and use of filters (fiber type FRU, and electrofilter type FE, and two-stage lavsan cloth filters FPP, and the "Laik" system to remove dust. The "Laik" filter system is found to decrease, substantially, the amount of microorganisms and dust in the air.

USSR

UDC 619:614.449.932

# PROTECTION OF PIG COMBINES FROM RODENTS

Moscow VETERINARIYA in Russian No 3, Mar 78 pp 35-37

MIRZAYEV, SH. M., Uzbek Scientific Research Veterinary Institute

[Abstract] In the thousands of animal farms in the USSR, none have been designed to prevent invasion of rodents into the buildings. Rats, especially, have proliferated; de-ratization of the farms is not enough, and active defense of the buildings against rodents is needed. Rat damage to heating conduits is considerable and their consumption of feed in pig farms is a tangible loss. Some success in rat removal is cited for the pig combine "30 Let Pobedy" in Dzhambayskiy Rayon of Samarkand Oblast in which potential nesting places were decreased in number. Points of entry for rats into the building must be blocked off and areas in which they might settle, e.g., nesting opportunities, must be eliminated. Poison bait employed to control population has included the sodium salt of zoocoumarin.

USSR

UDC 619:576.858.6:616-006.446:636.22/.28

# OCCURENCE OF ONCORNAVIRUS OF CATTLE ON FARMS AFFECTED WITH LEUCOSIS

Moscow VETERINARIYA in Russian No 3, Mar 78 pp 40-43

VALIKHOV, A. F., BURBA, L. G., NAKHMANSON, V. M., ZINEVICH, L. A., KOZIN, A. F., GOLOVCHENKO, A. P., GULYAKHIN, M. I., VEZOVITOV, N. B. and BORODIN, A. G., All-Union Institute of Experimental Veterinary Science

[Abstract] Available literature studies indicate a link between virus Type C or oncornavirus (OV) and leucosis in horned cattle, and studies have shown its leucomogenic activity (Miller, et al., 1969, 1972). This article presents results of a study of the occurrence of serologically-positive animals using the immunodiffusion reaction with the glycoproteid antigen of OV. Animals (Bestushevskiy, Kholmogorskiy and Swiss cattle) on three farms were tested. Persistent OV was found in animals on farms affected by leucosis, but only 20% of the animals, for the most part 3-4 yrs of age, displayed hematological changes characteristic of leucosis. Tests for response to treatment for OV, which are based on exposure and removal of animals with persistent lymphocytosis, can overlook those animals with OV which do not exhibit leucosis symptoms. The method of the immunodiffusion reaction with the OV glycoproteid antigen warrants practical use for identification of OV affected animals. Figure 1.



## II. BEHAVIORAL SCIENCES

### Physiological Psychology

USSR

UDC 616.89:616.921.5:616.831-022.6-02

#### ISOLATION OF INFLUENZA VIRUS FROM BRAIN TISSUE OF CASES OF INFLUENZA-RELATED PSYCHOSES AND OTHER MENTAL DISEASES ASSOCIATED WITH INFLUENZA

Kiev VRACHEBNOYE DELO in Russian No 1, 1978 pp 137-142

REVENOK, A. D. and MEDVED', YE. L., candidates of medical sciences, Kiev Municipal Psychoneurologic Hospital imeni Academician I. P. Pavlov, and the Virus Laboratory of the Kiev Municipal Sanitary Epidemiologic Station

[Abstract] Studies were conducted on the isolation of influenza virus from patients with seeming influenza-related psychoses and other mental disturbances associated with attacks of this viral disease. Of the 182 autopsy cases examined 99 had a history of influenza-related psychosis. The laboratory investigations were conducted on antemortem blood and CSF specimens, as well as portmortem solid tissue samples and body fluids. In addition, clinical and laboratory studies were conducted on 2 patients that recovered from influenza and influenza-related mental disorders. Infection related psychosis was diagnosed in 99 of the total of 184 patients (influenzal in 96, parainfluenzal in 2, and adenoviral in 1); 6 patients had epilepsy, 5 were schizophrenic, and 3 suffered from manic-depressive psychosis, and 2 were oligophrenic. Influenza virus A was isolated from 21 cases of influenza-related psychosis, and influenza virus B from 2. Immunofluorescent studies on 135 subjects revealed influenza A antigens in the brains of 57 subjects; 27 of them had infectious psychosis and 3 of that group also were positive for parainfluenza and adenoviral antigens. In most cases viral antigens were detected only in the frontal lobes. The presence of viral antigens in the brain was unrelated to blood antibody titers against the specific antigens (0 to 1:640). It appears that penetration of the virus into the central nervous system is favored by immunologic deficiency; survival of the virus in the brain for prolonged periods of time leads eventually to the development of influenza determined psychotic changes. References: 5 Russian.

CSO: 1840

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